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TRAJECTORIES TOWARD BECOMING A TEACHER: EXPLORING THE DEVELOPMENTAL PROCESSES OF PRESERVICE TEACHERS' CONCEPTIONS OF TEACHING AND THEIR TEACHER IDENTITIES

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TRAJECTORIES TOWARD BECOMING A TEACHER: EXPLORING THE DEVELOPMENTAL PROCESSES OF PRESERVICE TEACHERS' CONCEPTIONS OF TEACHING AND THEIR TEACHER IDENTITIES

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"Becoming" is a natural phenomenon that is experienced throughout one's life, and yet it does not appear to involve a simple process. This study was about how preservice teachers become teachers. As such, it was focused on the developmental processes that preservice teachers experience as their conceptions of teaching and their teacher identities change throughout their teacher education program. Although the two developmental aspects have been importantly considered by teacher educators when setting goals for teacher education and have been popular topics to educational researchers, few studies have explicitly observed how conceptions of teaching and teacher identities are related to each other in preservice teachers' professional development trajectories. In a longitudinal study that tracked eight preservice teachers for three semesters of their teacher preparation, naturalistic observations of student teaching

and semi-structured interviews served as the primary data sources. Data analysis was inductive and interpretative, using the qualitative methods of grounded theory.

All of the preservice teachers in the study experienced conceptual change in their conceptions of teaching toward the direction aligned with their teacher education program, though their developmental patterns varied in terms of nature, speed, and distinctiveness. In the process of conceptual development, preservice teachers' attention shifted from a focus on self to a focus on students, which I called an *outward journey*. They also evolved their teacher identities throughout the program with increasing confidence in becoming a teacher every semester. The formation of their teacher identities began by recognizing self as a teacher as positioned by others and continued with self-cultivation as a teacher, a process I called an *inward journey*. Needing continuous validation and reflection, the two journeys were closely related, sharing some characteristics and mechanism of growth and reciprocally influencing each other. Through interpretation of the data, I concluded that these two journeys cannot be separated from each other but, instead, should be integrated into external and internal development of becoming a teacher. As lifelong learners, preservice teachers are beginning the continual journey of becoming a good teacher throughout their career.

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Prologue

My dissertation study dealt with the issue of "becoming." Last April, I became a brand-new mom. I will never forget the moment when I first held my baby. There is no doubt that he is the best product in my life. And yet, the whole process of my pregnancy and delivery felt like a long journey through a cave or long tunnel. I even experienced a crisis at some point, a sense I was losing myself as a graduate student and researcher. In my experience, the process of becoming may not always be simple and natural but may involve some struggling, self doubts, even pain. My study is about the developmental trajectories of preservice teachers on their way to becoming teachers.

CHAPTER 1

INTRODUCTION

When students, with a vision or dream of becoming a good teacher to young people, enter into a teacher preparation program, they take on the name *preservice teachers*. My study is about preservice teachers' stories of becoming teachers. How do preservice teachers develop their knowledge and beliefs about teaching? At what time point do they start feeling they are a teacher? Springing from these questions, my study is a naturalistic and inductive inquiry exploring what processes preservice teachers experience throughout the teacher preparation program in terms of their conceptual development and formation of teacher identity.

Theoretical Orientation

Although many researchers in several academic disciplines, including philosophy and anthropology, have defined beliefs and knowledge as two different concepts, it is widely accepted that knowledge and beliefs are overlapping constructs in the education field (Alexander & Dochy, 1995; Murphy & Mason, 2006). Teachers' knowledge is especially seen as beliefs because it has been researched to be tacit, subjective, and mostly unconsciously acquired (Alexander, Schallert, & Hare, 1991; Kagan, 1992; Pajares, 1992). Thus, I use the terms *beliefs* and *knowledge* interchangeably to refer to *conceptions of teaching*. In my view, *conceptions of teaching* is a term equivalent to Borko and Putnam's (1996) *general pedagogical knowledge and beliefs*. More specifically, conception of teaching includes fundamental knowledge and beliefs about learners and their ways of learning and knowledge of various strategies for managing

students' behaviors in the classroom, conducting lessons, and creating learning environments. Preservice teachers' conceptions of teaching also include their visions or goals for teaching such as "what classroom environment I want to create," "what/how should my students learn from my class," or "what/how I want to teach my students."

Previous research on preservice teachers' conceptions of teaching can be summarized to have two main themes: how preservice teachers' preconceptions of teaching function in their current learning to teach and whether preservice teachers' conceptions of teaching change through teacher education. The first theme received more attention in previous decades in this field, and the second theme has been increasingly researched in recent years. In addition, most researchers or teacher educators have dealt with either theme from different perspectives, generating debates along the way.

With respect to the first theme, preservice teachers' preconceptions of teaching have been researched under various names such as *lay theories* (Holt-Reynolds, 1994), *entering conceptions* (Anderson, 2001), *prior beliefs* (Hollingswroth, 1989), *intuitive screens* (Goodman, 1988), *teacher images* or *metaphors* (Calderhead & Robson, 1991; Bullough & Strokes, 1994), among others. It has been agreed upon that these preconceptions of teaching come mostly from preservice teachers' past educational and general life experiences, and play an important role as a filter on their experiences of learning to teach (Borko & Putnam, 1996; Richardson, 1996; Weinstein, 1990). In addition, the majority of researchers report that preservice teachers' initial conceptions of teaching are simplistic and immature, showing little appreciation of the reciprocal relationship between teaching and learning (Calderhead, 1988; Feiman-Nemser et al.,

1988; Hollingsworth, 1989; Weinstein, 1990). However, presenting a different point of view of preservice teachers' preconceptions of teaching, Pendry (1997) claimed that preservice teachers' preconceptions include an appreciation of the complexities of classrooms and students' ways of learning. These conflicting research results call for more research on the content of preservice teachers' preconceptions.

In regards to the second theme, whether preservice teachers experience conceptual change, researchers have failed to reach agreement. Although the idea that beliefs are difficult to change has been generally assumed and demonstrated by empirical studies, some researchers have argued that preservice teachers' conceptions of teaching do develop in some way during their teacher preparation program (e.g., Anderson, 2001; Cabaroglu & Roberts, 2000; Joram & Gabriele, 1998). Especially, my study is strongly inspired by the work done by Cabaroglu and Robert (2000). Cabaroglu and Robert questioned the previous research report that preservice teachers' prior beliefs do not change much, and accordingly that teacher preparation programs do not seem very powerful. They provided the following three reasons in support of their argument: (a) teacher preparation programs should be viewed as variables in belief development, not as constants; (b) individual variations can be lost in group-level measures such as questionnaire rating scale data; and (c) the inflexibility of beliefs is an ambiguous construction because it could mean an absence of dramatic change. Similar to the first argument, Wideen et al. (1998) mentioned that we should not assume that the nature of beliefs is fixed and inflexible as long as more robust programs targeting belief change are not used. In addition to the function of teacher education programs per se, other

environmental factors and individual characteristics should be considered as influencing the process of developing perservice teachers' conceptions of teaching. In particular, Patrick and Pintrich (2001) suggested that epistemological beliefs might facilitate or constrain teachers' conceptual change.

Epistemology is a relatively new area of interest in the field of education. Originating from Perry (1968)'s pioneer research on college students' intellectual and moral development, many scholars have identified developmental sequences of thinking about the nature of knowledge and ways of knowing (Baxter & Magolda, 1992; Belenky et al., 1986; King & Kitchener, 1994; Kuhn, 1991; Schommer, 1990). Each epistemological model differs slightly in terms of the focus of inquiry. Yet, epistemological researchers have reached agreement on conceptualization of core beliefs, such as knowledge beliefs and beliefs about knowing, and have commonly shown the same developmental direction from naïve to sophisticated stances, either in stage-like or continuum form. Although there are still ongoing debates (e.g., separating vs. adding beliefs about learning and learning ability; domain generality vs. domain-specificity), there seems no argument that epistemological models are important contributions to humans' intellectual development (Hofer & Pintrich, 1997; Hofer, 2001 & 2006).

After Hofer and Pintrich (1997) reviewed the previous research and provided an integrative conceptualization of epistemological beliefs, research on the impact of epistemological beliefs on students' learning rapidly increased in the education field. As many studies have reported, epistemological beliefs may influence students' comprehension, strategy use, cognitive processing and engagement, and conceptual

change (Hofer, 2006; Kardash & Scholes, 1996; Nussbaum & Bendixen, 2003; Mason & Boscolo, 2004; Schommer, 1994; Ryan, 1984). Likewise, epistemological beliefs may play an important role in preservice teachers' learning to teach. In the study reported here, I offer that epistemological beliefs may be related to preservice teachers' conceptual change about teaching. As core beliefs, epistemological beliefs may encourage or constrain change in preservice teachers'conceptions of teaching. Preservice teachers who have sophisticated epistemological beliefs may be more willing to accept newly introduced notions and beliefs about teaching (Patrick & Pintrich, 2001).

Ultimately, educational researchers and teacher educators who desire the development of preservice teachers' conceptions of teaching would expect that those desirable changes will be reflected in their future teaching practice. It has been generally presumed that there is an interrelation between beliefs and actions; people take actions depending on their beliefs and also change their beliefs through reflecting on their actions. Although many empirical studies have supported this general assumption, the relationship between teachers' epistemological beliefs or conceptions about teaching and their teaching practice still remains as a controversial issue. Some studies showed that teachers who have more sophisticated epistemological beliefs or student-centered conceptions of teaching are more likely to provide open-ended activities, detect students' alternative conceptions, or use more flexible and richer teaching strategies (Anning, 1989; Cornett et al., 1990; Hashweh, 1996; Olafson & Schraw, 2006; Woodside-Jiron & Day, 2001). On the other hand, other studies have argued that there is no consistent relationship between teachers' beliefs and their actual specific teaching actions (Eley,

2006; Hativa et al., 2001; Kane et al., 2002; Schraw & Olafson, 2002; Wilcox-Herzog, 2002).

Especially, Eley (2006) critiqued previous research on methodological grounds for failing to investigate whether or not teachers' indicated beliefs are functionally involved in their specific teaching preparation behaviors and actual interaction with students. According to Eley, the interview or survey questions commonly used in previous research (e.g., what is teaching?) tend to encourage participants to provide a crystallized, general notion about teaching rather than what they truly believe or accept. Accordingly, Eley concluded that those conceptions of teaching deduced from broad reflection on their past experience may be an independent body of thought irrelevant to their teaching actions in a specific context. Although his conclusion is not a new idea, Eley refreshed the recognition of the importance of connecting between the development of teachers' knowledge and beliefs and the improvement of their approach to teaching. His work inspired me to think that the student teaching period might be the most critical time period during the teacher preparation program because preservice teachers may experience the most change or at least a high level of elaboration in the development of their knowledge and beliefs during the period. Therefore, in this study, I set to investigate how preservice teachers' conceptions of teaching that they had developed from their coursework and their internships would be reflected in their student teaching and whether or not the conceptions would change through the experience of student teaching.

Although different teacher preparation program may differ in general philosophy or structure and in the emphasis given to specific issues, preservice teachers' learning to

teach is commonly composed of developing conceptions of subject matter, learning to manage students' behaviors, and developing conceptions of teaching and learning as well as of the roles teachers play. Addressing these learning-to-teach topics all contribute to the development of preservice teachers in their identities of self-as-a-teacher (Britzman, 1991). Preservice teachers have their dual roles, self-as-a-student and self-as-a-teacher in teacher education programs (Johnston, 1994), and they experience challenges and tensions between the two different roles and two different contexts, university classrooms and elementary classrooms (Calderhead, 1991; Feiman-Nemser & Buchmann, 1985; Smagorinsky et al, 2004; Valencia et al., 2009). Feiman-Nemser and Buchmann (1985) described this process as stressful, calling *two-worlds pitfall.*

These views of the process of coming to see themselves as teacher are aligned with contemporary conceptions of identity. In this study, I drew on views of teacher identity as unstable, shifting, and multiple (Beijaard et al, 2004; Gee, 2001; Rodgers & Scott, 2008). The formation of teacher identity is seen as a continuous growing process over time through negotiating with the multiple contexts and relationships with others that preservice teachers face in their teacher preparation programs (Maclean & White, 2007; Walkington, 2005). With respect to the relationship between conceptions of teaching and teacher identity, Beijaard et al. (2004) reviewed 25 studies on teacher professional identity and concluded that preservice teachers' beliefs were determined by their biographies and could be considered as important constituents of their professional identity formation. Similarly, Cabaroglu and Roberts (2000) claimed that preservice

teachers' beliefs would reflect the ways of making sense of their evolving identity, self-as-a-teacher.

Impetus for the Study

My understanding of potential relationships between preservice teachers' beliefs about teaching and their teacher identity formation served as the impetus for my dissertation study. As an educational psychologist, I wanted to build a stronger conceptualization of general pedagogical knowledge and beliefs about teaching and learning, those related to preservice teachers' learning to teach and the evolution of their teacher identities. As a former elementary school teacher, I understood the importance of what teachers believed about teaching in pursuing what types of teachers they would ultimately like to be and conducting actual lessons. As a future teacher educator, I wanted to have a comprehensible understanding about what developmental process preservice teachers experience in their teacher preparation program and further to help them to become a good teacher. Thus, two important developmental aspects of becoming a teacher, teacher identity formation and conceptions of teaching were central to my study. In addition, the role of epistemological beliefs was considered in the process of developing conceptions of teaching and evolving teacher identity. I hoped by connecting those two areas and exploring them through preservice teachers' voices that this study would be able to provide a more integrated psychological model of learning to teach based on the study results.

Research Questions

The purpose of study was to explore the developmental processes that preservice teachers experience as their conceptions of teaching and their teacher identities change throughout their teacher education program. In an effort to connect the constructs of conceptions of teaching, epistemological beliefs and teacher identity, my study was guided by the following five questions.

1. How do preservice teachers' conceptions of teaching grow and change across the three semesters of their teacher preparation program?
2. How are preservice teachers' epistemological beliefs related to their conceptual change?
3. How do preservice teachers' teacher identities evolve over time?
4. What is the relationship between preservice teachers' conceptual change and formation of their teacher identities?
5. How are preservice teachers' beliefs about knowledge and teaching reflected in their student teaching?

Organization of the Dissertation

In the following chapter, I present conceptualizations of three constructs, conceptions of teaching, epistemological beliefs, and teacher identity, along with key findings of previous research. In Chapter 3, I describe my methodological approach to addressing the research questions outlined above and the methods of analyzing data, including measures that were used and data collection procedures. Chapter 4 outlines my findings. In Chapter 5, I provide a discussion of my findings relative to the existing literature and the research questions. I also identify the limitations of the study. Finally I suggest implications for teacher education and for theory and future research.

CHAPTER 2

LITERATURE REVIEW

To review the literature relevant to understanding the development of preservice teachers' conceptions of teaching and their teacher identities requires an examination of several areas. In this chapter, I review existing conceptualizations and key findings from previous research on preservice teachers' conceptions of teaching, epistemological beliefs, and teacher identity. Chapter 2 has been organized into four main sections: (a) conceptions of teaching, (b) epistemological beliefs, (c) teacher identity, and (d) teacher preparation programs.

Conceptions of Teaching

Section 1 begins by defining what *conceptions of teaching* is and what category it falls under in my study because much of the research that involves conceptions of teaching has been conducted in postsecondary education rather than in the K-12 education field with which I am concerned. Also covered in this section are important roles of conceptions of teaching in preservice teachers' learning to teach and a brief review of the impact of conceptions of teaching on approach to teaching.

Conceptualizations of Conceptions of Teaching

Beliefs and knowledge. Understanding what a *conception of teaching* is requires a brief introduction into the debate on the difference between *knowledge* and *beliefs*. Although there have been several conceptualizations of *knowledge* and *beliefs* preferred in the academic disciplines of psychology or anthropology, confusion between the two still remains. For example, whereas Rokeach (1968) defined *knowledge* as a type of

belief, Nisbett and Ross (1980) considered *beliefs* to be a type of knowledge. Yet, Richardson's (1996) distinction between the two has been commonly accepted in the field of education. According to Richardson (1996), *knowledge* is true and justified, whereas beliefs are felt to be true and can be held without necessarily requiring justification or evidence. Another interesting conceptual distinction between *knowledge* and *beliefs* was made by Alexander and Dochy (1995). These researchers asked 120 adults with various expertise levels from the United States and Europe to share their views about conceptions of knowledge and beliefs. They found that respondents shared the idea of distinguishing between the two constructs such that *knowledge* was objective and formally constructed by schooling, whereas *beliefs* were subjective and seen as the outcomes of everyday encounters, regardless of the differences in their cultural background and educational experiences. However, the majority of the respondents turned out to perceive *knowledge* and *beliefs* as overlapping and interacting constructs that still retained unique dimensions.

Unlike philosophers or psychologists, most educational psychologists are likely to refer to one construct, either *knowledge* or *beliefs,* or to use the terms interchangeably (Murphy & Mason, 2006). In fact, a distinction between beliefs and knowledge is explicitly not made much of the teaching and teacher education literature (e.g., Alexander, Schallert, & Hare, 1991; Borko & Putnam 1996; Hoy, Davis, & Pape 2006; Kagan, 1992; Pajares, 1992). Kagan (1992) pointed out that teachers' knowledge is mostly subjective and much like beliefs. Thus, guided by these researches, in this study I consider *beliefs* and *knowledge* as generally overlapping constructs and discuss conceptions of teaching

as beliefs and knowledge about teaching that preservice teachers hold and develop during their teacher preparation program. To further clarify what category falls under my use of the construct of conceptions of teaching, I would like to connect with Shulman's (1986b; 1987) categories of teachers knowledge.

Shulman (1986b) is recognized as having brought the attention of the field on the professionalization of teaching by emphasizing the importance of what a teacher knows in affecting the quality of teaching. He believed that there exists a "knowledge base for teaching," and that it grows as a teacher acquires expertise. According to Shulman (1986b; 1987), teachers need to develop their knowledge in seven categories so as to promote students' learning: (1) content knowledge, (2) general pedagogical knowledge, (3) curriculum knowledge, (4) pedagogical content knowledge, (5) knowledge of learners and their characteristics, (6) knowledge of the educational context, and (7) knowledge of educational ends, purpose, and values, and their philosophical and historical grounds. The knowledge about students category was added later by Shulman (1987), and he highlighted the importance of teachers' knowing about the thinking ways of their students. With respect to this category, Borko and Putnam (1996) claimed that it was very much intertwined with general pedagogical knowledge and pedagogical content knowledge, and synthesized Shulman's categories into three domains of teacher knowledge: (a) general pedagogical knowledge and beliefs, (b) subject matter knowledge and beliefs, and (c) pedagogical content knowledge and beliefs.

In these domains, *general pedagogical knowledge and beliefs* is most relevant to my study as it includes knowledge of various strategies for effective classroom

management, instructional strategies for conducting lessons and creating learning environments, and fundamental knowledge and beliefs about learners and how they learn (Borko & Putnam, 1996). Considering that the categories of teacher knowledge are not discrete entities and that boundaries among them are not always clear, Borko and Putnam's (1996) combined categories seem to give us a more integrative view about teacher knowledge and beliefs. I also agree with them that there is no single system for organizing teachers' knowledge and any categorization is arbitrary. Therefore, in my view, *conceptions of teaching* refer to general pedagogical knowledge and beliefs about teaching, learning, and the roles of teachers and learners, equivalent to Borko and Putnam (1996)'s *general pedagogical knowledge and beliefs*.

Conceptions of teaching in higher education. As mentioned previously, *conception of teaching* is a term that has been used more often in higher education though teacher knowledge and beliefs may have been earlier and more widely researched in the K-12 education field. In studying university academics, researchers began to examine beliefs about teaching around the early 1990s, and the attention on this area has rapidly increased since Kember's (1997) conceptualization about university academics' conceptions of teaching was introduced. Having reviewed 13 research studies, Kember (1997) placed conceptions of teaching under two broad orientations, that is, *teacher-centered/content-oriented* and *student-centered/learning-oriented*. He also added one more category, labeled *student-teacher interaction*, in order to link the two orientations. The five conceptions beneath these orientations were identified within a continuum as the

following: (1) imparting information, (2) transmitting structured knowledge, (3) teacher-student interaction, (4) facilitating understanding, and (5) conceptual change.

Whereas Kember's five conceptions of teaching were derived by an integrative review of studies, Samuelowicz and Bain (2001) identified seven categories through interviewing 39 faculty from three universities: (1) imparting information, (2) transmitting structured knowledge, (3) providing and facilitating understanding, (4) helping students develop expertise, (5) preventing misunderstandings, (6) negotiating understanding, and (7) encouraging knowledge creation. As is evident, their first two categories were exactly the same as Kember's and the other categories also overlapped, but modified Kemper's categories a bit. Especially, we can notice that the learning-centered orientation categories (# 4, 5, 6, & 7) were much more elaborated in Samuelowicz and Bain's set of categories. One distinctive and interesting result was that there was no transition category (i.e., Kember's category 3, teacher- student interaction) in Samuelowicz and Bain's categories. They argued that empirical support was not found in their qualitative data for Kember's transitional category acting as a bridge between the two major sets of orientations: the content-centered and learning-centered.

In line with previous research, Postareff and Lindblom-Ylanne (2008) identified key two major orientations of teaching, but they reported that variation in descriptions of teaching could be captured in detail only after considering the purpose of teaching. They claimed that we should go beyond the teacher/student-centered dichotomy and consider the complex relationship between the two orientations in order to develop the quality of teaching in higher education. More closely related to my work, Entwistle et al. (2000)

pointed out that the two literatures, higher education and school-based literature, have previously not cross-referenced each other, although they have researched similar constructs and shared common elements regarding how teachers (k-12) and lecturers (post-secondary) think about teaching. They provided a more complete concept map about what may underlie the notion of good teaching through integrating their empirical findings with the previous research results from different areas. According to Entwistle et al., sophisticated conceptions of teaching will be derived from a thoughtful consideration of past experience, and imply both an expanded awareness of the relationship between teaching and learning and a strategic alertness to classroom events.

Conceptions of Teaching in Learning to teach

Why is conception of teaching important? As reviewed, conceptions of teaching have been separately researched in different forms or ways in the higher education and K-12 education fields. However, there may be no argument that teachers are prepared to act on beliefs and to use their knowledge about teaching and learning in the face of conflicting situations. I turn now to why conceptions or beliefs are important in learning to teach. Richardson (1996) mentioned two functions of beliefs in learning to teach. One is that beliefs shape preservice teachers' learning, and the other function is that beliefs themselves are the focus of change through teacher education.

Similarly, the two important and interrelated aspects of teachers' knowledge and beliefs in learning to teach were discussed by Borko and Putnam (1996). According to these researchers, preservice teachers' knowledge and beliefs about teaching serve as filters in deciding what and how they learn in teacher preparation coursework. Besides

influencing preservice teachers' current learning to teach, knowledge and beliefs are critical targets of change because they are major determinants of what teachers do in the classroom. Teacher educators have attempted to help preservice teachers acquire new knowledge and beliefs in order to make significant changes in these future teachers' teaching practice.

What conceptions of teaching do preservice teachers hold? With respect to research on pre-service teachers' entering conceptions, studies that have focused on what kinds of preconceptions preservice teachers hold seem to be relatively rare, especially in recent years, compared to the research on the nature or function of those preconceptions in learning to teach. The research focus in K-12 education may have shifted from *what* conceptions preservice teachers have to *how* their conceptions are changed. However, it is still important to know what preconceptions students bring to their classroom and where those conceptions come from, before discussing whether and how they can be changed. Although preservice teachers' preconceptions have been described with various names such as lay theories (Holt-Reynolds, 1994), images (Calderhead & Robson, 1991), metaphors (Bullough & Stokes, 1994), or intuitive screens (Goodman, 1988), the content of these preconceptions can be summarized into some common themes. For this, I adopted three comments from Weinstein's (1990) synthesis of previous studies: (a) the lack of appreciation for the complexity of teaching, (b) a heavy emphasis on the affective and interpersonal aspects of teaching, and (c) high confidence in their ability to teach.

Many researchers have reported that preservice teachers begin with a very simplistic view of teaching when taking an introductory education course; they believe

that teaching is telling and learning is reproducing what the teacher says (e.g., Calderhead, 1988; Feiman-Nemser et al., 1988; Russell, 1988). Similarly, Hollingsworth (1989) found that half of the 14 preservice teachers in her study initially believed that learning was primarily accomplished through teacher-directed information. Weinstein's (1990) three themes are interrelated with each other because it may be that preservice teachers' uncertainty about the reciprocal relationship between teaching and learning may lead to this simplistic and affective views on teaching (e.g., teaching is transmitting information, teaching is nurturing or caring for students) and high confidence in their teaching without grounds. Weinstein's (1990) "unrealistic optimism" seems to represent well preservice teachers' immature views of teaching and their anticipation of how well they will do in their future teaching performance.

Interestingly, Pendry (1997) reported a slightly different position about the level of preservice teachers' preconceptions, stating: "preconceptions were far from simplistic, often included thinking about pupils as learners,…..several were already aware of the complexities of classrooms and ways of learning" (p.94). In addition to the observation that the recent research on the content of preservice teachers' conceptions of teaching is not abundant, these conflicting research results provided a good rationale for my further study.

What are the origins of conceptions of teaching? Besides researching what conceptions of teaching preservice teachers have, knowing the origins of those beliefs about teaching and learning is also important. Generally, three categories of experience as factors influencing preservice teachers' preconceptions have been discussed in the

literature on learning to teach (Richardson, 1996): (a) personal experiences, (b) experience with schooling and instruction, and (c) experience with formal knowledge. Personal experience includes all aspects of life that influence the formation of world views such as personal, familial, and cultural understandings about the self, one's relationship with others, and the relationship of schooling to society. Experience with schooling and instruction is related to the "apprenticeship of observation" (Lortie, 1975) that individuals experience during their many years of being a student. Although this apprenticeship of observation provides preservice teachers informal and tacit knowledge about teaching and learning, preservice teachers also experience formal instruction about knowledge they need to know, how to teach, or how students learn in their school subjects and pedagogical education program.

One study that empirically investigated what influenced conceptions of teaching is Entwistle et al.'s (2000) study of 55 students taking a one-year postgraduate teacher training course. The researchers used two types of questionnaires, an open-ended survey and rating scales, created based on their previous qualitative study results, to encourage students to reflect more directly on the origins of their ideas about good teaching. Consistent with Richardon's (1996) categories, the researchers found three possible origins influencing students' conceptions of teaching: (a) influences from the extracts (e.g. books, articles), (b) influences from cultural background, and (c) influences from teaching experience and contacts with children. Interestingly, the results showed there was surprisingly little mention of influences from the course or academic readings; on the other hand, most students mentioned their experiences as a pupil, parent, or student

teacher on teaching practice. In addition, relevant teaching experiences, of whatever form, were considered as a stronger influence on students' views about good teaching than the theoretical or institutional inputs taught during the course.

Does change in conceptions of teaching occur? One dominant research area in pre-service teachers' learning to teach has focused on the role of preservice teachers' prior beliefs and their change. As mentioned previously, preservice teachers enter into teacher education programs with some prior beliefs or lay theories about teaching and learning, and those entering conceptions influence whether, what, and how they learn from teacher education (Bird. 1991; Calderhead, 1991; Hollingsworth, 1989; Holt-Reynolds, 1992; McDiarmid, 1990). There seems to be consensus that preservice teachers' entering conceptions about teaching and learning represents one of the most significant factors influencing their learning to teach (Anderson, 2001; Borko & Putnam, 1996; Calderhead, 1996; Pajares, 1992; Richardson,1996). In addition, the argument that preservice teachers' prior beliefs function as a filter (Borko & Putnam, 1996; Kagan, 1992; Weinstein, 1990) or as a gatekeeper (Joram & Gabriele, 1998) in their learning to teach has been widely accepted by teacher educators and educational researchers.

Hollingsworth's (1989) research showed how the filtering function of prior beliefs works in preservice teachers' learning to teach. She examined cognitive changes in 14 secondary and elementary preservice teachers enrolled in a nine-month graduate teacher education program that emphasized a constructivist view of reading. From four case studies, Hollingsworth concluded that preservice teachers' prior beliefs affected their understanding of a major program concept; the teachers who had constructivist views of

students′ learning agreed with and trusted the program messages and could easily modify their thinking in alignment with that of the program. On the other hand, the teachers who had superficially similar or directly contrasting philosophy to the program views showed only a memorization or copying level of performance in following constructivist activities or understanding constructivist concepts.

One thing we can notice from Hollingsworth′s (1989) study is that besides differences among preservice teachers′ prior beliefs about teaching, whether or not those beliefs are congruent with their program′s philosophy can be a significant factor in their ways of learning to teach and their conceptual change. Another empirical study that supports a negative role of presrvice teachers′ prior beliefs on their learning to teach is Holt-Reynolds′s (1992) study of nine preservice teachers with no field experience enrolled in a content area reading course. The course was considered as an extended campaign for the adoption of student-centered practice in the secondary classroom, and the professor of the course repeatedly questioned the value of teacher-directed instruction throughout the semester. However, preservice teachers did not share or accept the professor′s definitions, values, or links among some concepts under constructivist views on reading depending on their personal history-based beliefs.

Contrary to coming to a general consensus on the role of prior beliefs, researchers have failed to reach agreement about the nature of preservice teachers′ beliefs. Many researchers have assumed that teachers′ knowledge and beliefs are nearly impossible to change because they are tacit and often unconsciously held (Calderhead, 1991; Kagan, 1992; Pajares, 1992). In fact, many empirical studies also support the inflexibility of prior

beliefs (Hollingsworth, 1989; Holt-Reynolds, 1992; McDiarmid, 1990; Weinstein, 1990). However, some research studies that targeted prior beliefs in instruction reported that preservice teachers' prior beliefs had changed and showed some development (Anderson, 2001; Cabaroglu & Roberts, 2000; Joram & Gabriele, 1998).

Furthermore, I agree with Wideen et al. (1998) who claimed that we should not assume that beliefs are fixed until the effect of more robust programs of belief change have been analyzed. Applying general models of students' conceptual change to investigating changes in teachers' conceptions of teaching, Patrick and Pintrich (2001) suggested that motivational beliefs and epistemological beliefs might facilitate or constrain conceptual change in teachers. Therefore, discussions of the nature of teacher beliefs about teaching need finding and considering factors that influence preservice teachers′ conceptual change. If the meaning of change and ways of detecting more subtle elaboration and refinement were expanded (e.g., Anderson, 2001; Cabaroglu & Roberts, 2000), the research on the development of conceptions of teaching would be improved.

Impact of One's Conception of Teaching on One's Approach to Teaching

Besides exploring the impact of conceptions of teaching on preservice teachers' learning to teach, the relationship between their conceptions of teaching and classroom practice is an even more important issue of inquiry for teacher educators or educational researchers because it is one of the main goals of teacher education to facilitate preservice teachers' development that will be applied to their actual teaching. According to Nespor (1987), although teachers' belief systems are quite idiosyncratic and can be inconsistent depending on specific contexts, they still play valuable functions in dealing with complex

teaching situations such as interpreting classroom life, identifying relevant goals, or orienting teachers to particular teaching problems.

In line with Nespor's perspective, Calderhead (1996) mentioned that teachers' untested assumptions about teaching influence their thinking about classroom matters and responses to particular situations. In particular, teachers' beliefs and implicit theories about learning, motivation, and instruction influence their actual instructional behaviors in the classroom although teachers may not be aware of the influence on their behaviors (Patrick & Pintrich, 2001). Several empirical studies supported the association between teachers' beliefs and their ways of planning or teaching lessons (Anning, 1989; Cornett et al., 1990; Short & Short, 1989; Wilson & Wineburg, 1991). For example, the study by Anning (1989) explored how the beliefs about learners and learning that the teachers of young children held influenced the teachers' interpretations about children and ways of organizing tasks. The teachers who valued learners' active involvement focused on creating an emotionally secure environment where failure was totally accepted or provided more open-ended activities.

There is a substantial amount of research discussing the discrepancies between teachers' espoused beliefs and their observed classroom practice (Eley, 2006; Galton et al., 1999; Hativa et al., 2001; Kane et al., 2002; McAlpine & Weston, 2000). Interestingly, these represent mostly research on university teachers and concluded that there was no clear and consistent relationship between teachers' espoused beliefs and specific teaching practices. In relation to these results, Eley (2006)'s interpretation seems reasonable, that the methodological problems in previous studies can explain the results. Most research

used the same open general form of interview questions (e.g., what is teaching?) that might prompt general reflective responses. The responses may fail to provide enough evidence that the indicated conceptions of teaching are functionally involved in their actual teaching in more specific contexts.

Considering the weakness of "recall of recent thinking" approach, Eley (2006) asked 29 university teachers to recall and describe the thinking that went into the planning of some specific recent teaching episode. He suggested that conceptions of teaching are seen as entities that can exist independently of detailed planning and teaching activities because the crystallized conceptions may be outcomes of teachers' reflective activities and may be articulated in the form of an internally consistent general view. He also claimed that the specific planning activities in teachers' everyday teaching practice may still depend on teachers' teaching enactment in previous similar contexts. Although not new, Eley's (2006) argument is directly related to the issue of the theory-practice dichotomy that has been discussed for a long time in the teacher education field.

Although it has been a contestable issue whether or not teachers' beliefs influence their classroom practice, it seems to be widely acknowledged that the relationship between beliefs and actions is interactive. In other words, beliefs are considered to drive actions, but experience and reflection on action may lead to changes in beliefs as well (Richardson, 1996). In fact, this interactive relationship between beliefs and action is supported by the mechanism of conceptual change. Freeman (1991b) argued that making teachers' implicit beliefs system explicit by guiding them to talk or think about their own

practice or questioning contradictory beliefs that they may held should be an important aspect of teacher education.

Epistemological Beliefs

In addition to preservice teachers' conceptions of teaching, it may be important to consider their beliefs about the nature of knowledge and the process of acquiring knowledge, what is referred to as *epistemological beliefs*, in exploring the ways they handle learning-to-teach situations. This section presents first several approaches to epistemological beliefs that have been developed in the literature before moving second to a consideration of their impacts on approach to teaching. The relationship between conceptions of teaching and epistemological beliefs is the third topic reviewed in this section.

Conceptualization of Epistemological Beliefs

Epistemology is primarily concerned with understanding "how we know what we know." Although the construct has long been of interest to philosophers, epistemology is a relatively new area of interest to psychologists or educators. In the psychology of learning, the research on personal epistemology has explored students' thinking and beliefs about knowledge and knowing with a variety of names: *epistemological positions* (Perry, 1968); *epistemological assumptions* (King & Kitchener, 1994); *epistemological standards or attitudes* (Ryan, 1984a,b); *epistemological beliefs* (Schommer, 1994); *epistemological reflection* (Baxter Magolda, 1992); *epistemological resources* (Hammer & Elby, 2002); and *epistemological world views* (Schraw & Olafson, 2002). With respect to how personal epistemology has been conceptualized, Hofer (2001) provided an

important and recognized synthesis of the writings and studies on epistemological issues. Thus, I will take her categorization about models of epistemological beliefs and review some representative studies in each approach.

Developmental approach to epistemological beliefs. Most would trace the origins of personal epistemological research back to Perry (1968) who was originally interested in college students' intellectual and ethical development, and the effect of the college education experience. Through his longitudinal research on 84 Harvard male liberal arts students, Perry found a consistent pattern of change about how the students viewed the world that he categorized into four main epistemological positions: (a) dualism, (b) multiplism, (c) relativism, and (d) commitment within relativism. Individuals who have a dualistic view about the nature of knowledge believe that there is absolute truth and that it is transmitted by an expert or authority. When individuals start to consider knowledge from a multiplistic view, they believe knowledge can comprise personal opinions and depend less on authorities or absolute truths. Next, individuals who hold relativistic views believe that absolute truths cannot exist because knowledge is actively and personally constructed. The final position, commitment, is considered as existing within the relativistic view but is more related to valuing particular beliefs with flexible commitment.

Although Perry's (1968) epistemological positions were focused on young men in an elite academic setting, Belenky, Clinchy, Goldberger, and Tarule's (1986) ways of knowing were descriptions of women's epistemological development and eventually brought out some cultural issues in this field. These researchers interviewed 135 women

from academic and non-academic backgrounds and asked them a number of open-ended questions that were intended to reflect individuals' moral, cognitive, and identity development. Based on their findings, the researchers proposed five ways of knowing: (a) silence, (b) received knowing, (c) subjective knowledge, (d) procedural knowledge, and (e) constructed knowledge. As shown in Table 1, although the authors disagree on whether the five ways of knowing represent a developmental sequence (Goldberger, 1996), their epistemological stances are very aligned with the relevant positions of Perry's scheme.

In the first (silence) and second (received knowledge) perspectives, women are more likely to believe that there is only one right answer and that the origin of knowing is external. Differences between the two perspectives are whether women are voiceless and simply listening to external authority or whether they can reproduce and speak about the knowledge. Whereas silence is a unique stance of Belenky et al.'s work that shows how gender and power components influence epistemological beliefs and cannot be found in Perry's work, subjective knowing can be equated to Perry's multiplistic position but emphasizing that women are more likely to see truth as an intuitive reaction within the self; it is different from men's multiplism in that men are more likely to wrestle with authority from others. The position of procedural knowledge is parallel to Perry's relativism, and women in this position demonstrate reasoned reflection. In the final position of constructed knowledge, women see themselves as a participant in the construction of knowledge, and all knowledge is conceived of as contextual.

King and Kitchener's (1994) reflective judgment model also emerged from Perry's work, but they focused more on investigating epistemic assumptions underlying reasoning. King and Kitchener studied individuals' decisions in ill-defined problem solving and described changes in reflective processes and epistemological assumptions in their reflective judgment model. They found three main types of reflective thinking: (a) pre-reflective, (b) quasi-reflective, and (c) reflective thinking. In the pre-reflective stages, individuals are unlikely to think reflectively because they believe the problem has one correct answer. However, in the quasi-reflective thinking stage, individuals are able to reflect on knowledge in an abstract way, but still the dualistic categories of right and wrong exist although not to the same extent as in the pre-reflective thinking stage. Eventually, individuals in the reflective thinking stage believe that all knowledge is uncertain, and they are able to use reason and evidence to support their own opinion.

Table 1. Summary of Four Models of Epistemological Beliefs

Intellectual and ethical development (Perry, 1968)	Reflective Judgment model (King & Kitchener, 1994)	Women's ways of knowing (Belenky et al. 1986)	Independent beliefs system (Schommer, 1990)
Positions	Reflective judgment stages	Epistemological perspectives	Epistemological beliefs continuum
		Silence	Naïve beliefs
Dualism	Pre-reflective thinking	Received knowledge	· Omniscient Authority
Multiplism		Subjective knowledge	· Certain Knowledge
			· Simple Knowledge
	Quasi-reflective thinking		· Quick Learning
			· Innate Ability
Relativism		Procedural knowledge	
Commitment	Reflective thinking	Constructed knowledge	Sophisticated beliefs

The three main developmental models of epistemological beliefs are summarized in the first three column of Table 1. The common concern of these models is about beliefs about knowledge and knowing even though the models differ in terms of boundaries of constructs.

Beliefs systems approach to epistemological beliefs. Building on the work of Perry and others, Schommer (1990) conceived of epistemological beliefs as a multidimensional set of, more or less independent beliefs system rather than as stage-like and unidimensional characteristics. She identified the following five dimensions of beliefs: (a) *source of knowledge*, (b) *certainty of knowledge*, (c) *organization of knowledge*, (d) *control of learning*, and (e) *speed of learning* – each representing a continuum from naïve to sophisticated (see Table 1). Someone holding naïve epistemologies generally believes that knowledge resides in authorities and is unchanging; knowledge is simple, clear, and specific; concepts are learned quickly or not at all; and learning ability is innate. On the other hand, someone with more sophisticated epistemological beliefs holds that knowledge is complex and uncertain and that knowledge can be learned gradually through reasoning processes constructed by the learner.

With her introduction of the term *epistemological beliefs* and her decision to separate the subcomponents of beliefs, Schommer changed the field allowing for a more analytical inspection of personal epistemology. In addition, her "more or less" hypothesis led a consideration that individual epistemological beliefs develop in an asynchronous way. In other words, an individual who has a naïve belief in one area can have a

sophisticated belief in another area. She mentioned that any extreme belief could be problematic and emphasized that need for balance among subcomponents (Schommer, 2004). More recently, Schommer (2004) proposed a conceptualization of epistemological beliefs as an embedded systemic model including cultural and relational views, classroom performance, and self-regulated learning. As she admitted, her embedded systemic model may seem idealistic and overwhelming to test, and so, she suggested that coordinate teams composed of experts of different systems, of different research methodologies, and from different fields need to study the highly complex model together (Schommer, 2004). I will explain more about this model in the section on cultural and relational aspects of epistemological beliefs.

Alternative models of epistemological beliefs. Continuing my discussion of developmental models and Schommer's beliefs system model, I next turn to an alternative approach to epistemological beliefs, one that considers epistemological beliefs as epistemological theories (Hofer & Pintrich, 1997; Hofer, 2001). According to Hofer and Pintrich (1997), individuals' beliefs about knowledge and how they think about knowledge are interconnected in complex and coherent ways that could be considered theory-like. These researchers also claimed that epistemological beliefs can function as a person's theory that can guide subsequent thinking, given that different epistemological models seem to make some distinction between the nature of knowledge and the process of knowing. In addition, Hofer (2001) asserted that conceptualizing epistemological beliefs as individuals' theories about the nature of knowledge and processes of thinking will be helpful in clarifying and defining the construct. Similarly, Kuhn and Weinstock

(2002) mentioned that epistemological theories are *theories in action* because we have to make knowledge judgment in our everyday lives based on epistemological understanding of our real-world cognitive activities.

As a relatively new approach, the latest approach to conceptualizing epistemological beliefs is Hammer and Elby's (2002) ontological approach in which personal epistemology is viewed as a collection or network of "epistemological resources." Hammer and Elby pointed out that even young children can use their knowledge in several different ways in different contexts, reflecting different resources for understanding what sort of thing knowledge is and how it arises. They presented three natures and sources of knowledge: (1) knowledge as propagated stuff, (2) knowledge as free creation, and (3) knowledge as fabricated stuff. Propagated stuff means that knowledge can be passed from one person to the next. Although knowledge is understood to have a source and recipient in the first view of knowledge, the second view is more concerned about how knowledge may arise and includes stories, imaginary characters, and games children make up. In the view of knowledge as fabricated stuff, children understand that others can create knowledge for themselves and develop their knowledge from other knowledge.

Ongoing debates. So far, the ways of conceptualizing epistemological beliefs that I have been discussed represent the important works in this field. According to Hofer and Pintrich (1997), regarding the conceptualization of epistemological beliefs, there is more agreement on two core beliefs such as beliefs about the nature of knowledge and the process of knowing, and less agreement on peripheral beliefs about learning, intelligence,

and learning ability. With respect to those aspects about which there is less agreement they criticized Schommer's dimensions of "fixed ability" and "quick learning." Although these may be correlated with beliefs about knowledge and knowing, these two constructs seem outside the constructs of epistemological beliefs, have not traditionally been considered in the personal epistemology field, and they may also be related to implicit theories of intelligence and ability. Although Hofer and Pintrich (1997) claimed that separating beliefs about learning and learning ability from beliefs about knowledge and knowing would be more useful and theoretically fruitful, Schommer (2004) argued that the addition of these two dimensions as subcomponents of epistemological beliefs would bring a more analytical inspection of personal epistemology. She also discussed several empirical studies about how the two learning beliefs would link to knowledge beliefs based on other researchers' previous research conclusions drawn from their studies.

Another debate is about domain specificity and domain generality of epistemological beliefs. This issue has been discussed for a long time, being influenced by studies of differences in the cognitive processes of novices and experts (Hofer & Pintrich, 1997). Schommer and Walker (1995) reported a moderately consistent level of epistemological beliefs across domains, whereas some researchers claimed that different epistemologies may apply to different domains of knowledge (e.g., Belenky et al., 1986; Commons, 2004; King & Kitchener, 1994). As an alternative perspective on this debate, Sternberg (1989) suggested a more integrated and balanced approach is needed instead of choosing one or the other because the domain specificity or generality may be a false dichotomy and may be complementary rather than opposed. More recently, after

reviewing 19 empirical studies, Muis, Bendixen, and Haerle (2006) proposed that epistemological beliefs are both domain general and domain specific, and suggested a framework that incorporated both positions, called the Theory and Integrated Domains in Epistemology (the TIDE framework).

According to Muis et al., general, academic, and domain-specific epistemic beliefs primarily develop during the academic years, but they evolve over the entire life span influenced by sociocultural and academic contexts. In these developmental processes, reciprocity occurs among all levels of epistemic beliefs and also among mutilayered contexts. Interestingly, they mentioned that young children′s academic epistemic beliefs are more influenced by general epistemic beliefs, and with higher levels of education, individuals develop more dominant domain-specific epistemic beliefs. As a response to Muis et al.′s (2006) review, Hofer (2006) purported that they included some studies of beliefs about disciplines not about general beliefs about knowledge and knowing in their review articles, and suggested that distinguishing among general epistemic beliefs, disciplinary perspective on beliefs, and discipline-specific beliefs would be useful for future considerations of their proposed framework.

Cultural and relational aspect of epistemological beliefs. As mentioned previously, Belenkey et al.'s (1986) study about women's ways of knowing can be considered as the first instance of discussing cultural issues in the personal epistemology field. Their research showed vividly how environmental and contextual factors influenced individuals' epistemological beliefs outside academic institutional education. As for non-institutional variables, Schommer (1990) mentioned that individual students'

background variables and characteristics influenced their epistemology. For example, the students who had more educated parents and had been required to take more responsibilities for their own thinking at home were more likely to develop a sophisticated system of beliefs. Similarly, Anderson (1984) also considered that epistemological beliefs would be a product of both the home and formal education.

With an emerging sociocultural view of learning, the situated and contextual nature of epistemological theories has been increasingly discussed. According to a sociocultural learning theory, not only individuals' active construction of meaning but also social interactions with others who have different social and cultural backgrounds play a very important role in individual learners' development. The developmental process is seen as enculturation; as an individual learner becomes a member of a community, he or she become enculturated to the values and beliefs of the community. Likewise, epistemological beliefs are socially constructed and consistently changed through academic and non-academic enculturation (Baxter Magolda, 2004; Belenky et al., 1986; Brownlee & Berthelsen, 2006; Hofer & Pintrich, 1997; Jehng et al., 1993; Muis et al., 2006). Highlighting the social influence on epistemological beliefs, Brownlee and Berthelsen (2006) used the term *relational epistemology* instead of using "personal epistemology." The TIDE framework suggested by Muis et al. (2006) emphasized the importance of the sociocultural context in addition to the academic context in continuous epistemological development throughout individuals' life time.

As previously mentioned, Schommer's (2004) embedded systemic model of epistemological beliefs considered that cultural relational views would influence all three

categories of epistemological beliefs: beliefs about knowledge, beliefs about ways of knowing, and beliefs about learning. According to Schommer, *cultural relational views* refer to two dimensions such as the degree of closeness between people and the way of status differentiation among people. The degree of closeness is related to the difference between individualistic versus collectivistic societies. The status differentiation is commonly referred to as vertical versus horizontal relationships. She hypothesized that less sophisticated learners may assume a strong hierarchical relationship to experts and be more likely to keep their distance from instructors and hide behind anonymity. Schommer's hypothesis seems plausible and interesting enough to draw attention to the need for considering those cultural factors in the research on how epistemological beliefs influence students' learning or teachers' teaching.

Also related, Hofer (2006) pointed out that existing research on epistemological beliefs was mainly studied on white, well-educated individuals from the U.S. population, and more research is needed in various cultures and contexts including gender and ethnicity. In addition, Hofer and Pintrich (1997) indicated that the research on epistemological development or change was largely based on Piagetian mechanisms of development, possibly preventing a consideration of the social or cultural aspects. However, epistemological beliefs are consistently changed through social interaction with teachers and peers and shaped by their social and cultural settings rather than individual psychological characteristics people hold. Similarly, Roth and Roychoudhury (1994) suggested that it might be appropriate to speak of *epistemological positions* in specific contexts because of their situatedness. I personally prefer the term *epistemological*

positions because it includes the term *positions* that Perry used in his pioneer research of this field and seems to recognize the situated nature of epistemological beliefs.

Impact of One's Epistemological Beliefs on One's Approach to Teaching

There has also been a growing interest in understanding how teachers' epistemological beliefs may affect their instructional approach (Hofer & Pintrich, 1997). For example, in a study of science teachers, Hashweh (1996) found that teachers' epistemological beliefs affected their use of teaching strategies and their openness to students' alternative conceptions. The teachers who had constructivist epistemological beliefs were more likely to detect students' alternative conceptions and to use a richer repertoire of teaching strategies than the teachers holding positivistic empiricist beliefs. Similarly, Johnston and his colleagues (2001) found that constructivist teachers emphasized student discussion, interaction, and problem solving to a greater degree when compared to realist teachers. In addition, a teacher holding predominantly objectivist beliefs is more likely to be teacher-centered and transmissive whereas a teacher holding evaluativistic beliefs is more likely to be learner-centered in their approaches to teaching (Berthelsen et al., 2002).

Contrary to the previous research about a relationship between teachers' epistemological beliefs and their classroom practice, Wilcox-Herzog (2002) claimed that there was no consistent relationship between the two factors; although the epistemological world view and beliefs serve as contextual filters, they are translated into different instructional activities or curricular choices. In another study supporting these inconsistencies between epistemological world views and classroom practices, Schraw

and Olafson (2002) reported that epistemological world views did not appear to be strongly related to teaching practices. They found that all teachers except for one endorsed a contextualist world view, but their curricular choices and teaching strategies differed widely. With respect to the discrepancies between beliefs and practices, the researchers identified four common barriers that make it hard for teachers to weave their epistemology into classroom practice: (a) lack of experience, (b) time constraints, (c) administrative obstacles, and (d) lack of a professional culture supporting them.

In more recent research, Olafson and Schraw (2006) found that teachers who held a contextualist position of epistemological beliefs identified consistent instructional practices with that position such as collaborative group work, more student choice, hands-on activities, or more of a facilitator role for the teacher. Considering that the impact of epistemological beliefs on teaching practice has not been agreed upon among researchers and realizing that empirical research in this topic is relatively sparse (Hofer & Pintrich, 1997; Schommer, 2004), the need for researching the relationship between teachers' epistemological beliefs and their teaching approaches is still strong.

Linking Epistemological Beliefs and Conceptions of Teaching

Epistemological beliefs may be both directly and indirectly involved in the development of conceptions of teaching. As for the direct function, epistemological beliefs can serve as a filter encouraging or constraining preservice teachers' way of thinking about teaching and learning. This is because epistemological beliefs are core beliefs that function to connect all other beliefs (Brown et al., 2002). In regards to the indirect function of epistemological beliefs, like other college students, preservice

teachers who have sophisticated epistemological beliefs will be more likely to engage in deeper cognitive processing in their learning to teach. The deeper approach to learning will be related to more frequent conceptual change about teaching (Hofer & Pintrich, 1997; Patrick & Pintrich, 2002).

These direct and indirect influences of epistemological beliefs on change in conceptions of teaching are reflected in Patrick and Pintrich's (2001) hypothesis about the role of epistemological beliefs in conceptual change; preservice teachers who believe that knowledge is fixed are less likely to engage in conceptual change activities during their learning to teach (indirect function) and may be less receptive to newly acquired conceptions (direct function). Although it may seem reasonable to deduce that particular relations exist between epistemological beliefs and conceptions of teaching, there have been few empirical studies reporting on the relationship between the two. One such study by Sinatra and Kardash (2004) studied the relationship between preservice teachers' epistemological beliefs and their views on teaching. They found that preservice teachers who believed that knowledge evolves, that beliefs can be revised, and that learning is a process of constructing knowledge were more open to persuasive teaching. In addition, Chan and Elliott (2004) showed that beliefs in innate/fixed ability, authority/expert knowledge, and certainty knowledge were correlated with traditional conceptions of teaching, and learning as effort/process was correlated with constructivist conceptions of teaching.

Teacher Identity

One area of teacher preparation where teachers' knowledge and beliefs about teaching may be particularly relevant is in understanding how preservice teachers develop their teacher identity. In this section, the content of *teacher identity* is first defined and then its relationship with conceptions of teaching is discussed.

Conceptualization of Teacher Identity

***Self and identity*.** The research on identity issues has been carried out mainly in the discipline of psychology or philosophy during the 20th century. In the last decade, an increasing number of researchers have been exploring this topic in the field of teaching and teacher education. However, identity itself has been defined differently in the literature, and some confusion between *self* and *identity* still remains (Beijaard et al., 2000; Rodgers & Scott, 2008).

The concept of self that is often compared with identity originated with the work of symbolic interactionist, Mead (1934). He presented self in terms of a social process; as subject, "I" is an individual response to others' attitudes, whereas "Me," as object, is one's understanding about how others perceive oneself. For Mead, human thinking process is the internalized dialogue between "I" and "Me." Based on Mead's work, Nias (1989) distinguished between a *substantial self* (I) and *situational selves* (me). The substantial self is formed in one's early years influenced by family and one's immediate culture, and it is resistant to change. On the other hand, one's situational selves change over time by incorporating beliefs or values from social encounters. Identity can be considered closer to situational selves as object rather than substantial self as subject

(Rodgers & Scott, 2008). Another way of distinguishing between the two, as Rodgers and Scott mentioned, is that the *self* may be considered as the meaning maker and *identity* as the meaning made, and both evolve and transform over time.

Although *self-concept* and *identity* have been used interchangeably in some studies (e.g., Korthagen, 2004), Kash and Borich (1978) divided the construct of self-concept into five senses: (a) the sense of bodily self, (b) the sense of self-identity, (c) the sense of self-extension, (d) the sense of self-esteem, and (f) the sense of self-image. Teachers' sense of self-identity includes their sense of self in relation to others in affiliation or professional environments, and it is acquired by accepting professional roles, responsibilities, or obligations as a teacher (Borich, 1999). Considering Kash and Borich's categories of the self-concept, the *self* seems to subsume *identity* in addition to representing a distinction between subject and object.

Although the relationship between *self* and *identity* is still unclear, *identity* itself is generally defined in various ways about who or what one is perceived by oneself and others (Beijaard, 1995). According to Roders and Scott (2008), contemporary conceptions of identity share four basic assumptions: (1) identity is formed within multiple contexts, (2) identity is formed in relationship with others and involves emotions, (3) identity is shifting, unstable, and multiple, and (4) identity involves the construction and reconstruction of meaning through stories over time. With respect to identity formation, they also mentioned contexts and relationships as external aspects, and stories and emotions as internal meaning-making aspects.

Gee's (2001) four ways of viewing identity help us clarify how identity can be contextual, relational, multiple, and shifting: Nature-identity (N-Identity), Institution-identity (I-Identity), Discourse-identity (D-Identity), and Affinity-identity (A-Identity). N-identity is a way of looking at "who I am" based on nature, and it indicates a state (e.g., I am an identical twin), whereas I-Identity represents a position within an institution (e.g., I am a graduate student at the University of Texas). The third perspective on identity, D-Identity, is a matter of one's individuality or individual trait treated or talked about by other people, and is determined by "rational individuals," not nature or institutions (e.g., She is kindhearted). Last, the source of A-Identity is an affinity group made up of people who share similar interests across contexts. A-identity is acquired through participating in or sharing specific practices as a group member (e.g., Keanu Reeves fan).

According to Gee, these four identities interrelate with each other rather than form discrete categories, and each should be considered as a different aspect of how identities are formed and sustained. Each of the above examples of identities actually refers to one of my friends. These four identities are all present and woven together to represent her as she acts within each context, although it is possible to predict which identity can predominate in a given time and place. What was particularly impressive about Gee's four perspectives on identity was the recognition that almost any identity can be understood in terms of any of these different interpretative systems, and in this way, identity is a matter of negotiation with others rather than internal states.

Professional identity. As I have previously discussed so far, the concept of identity is not a static recognition of an individual's race, class, and gender, and a more

dynamic approach to identity was taken in this study. In other words, identity is not a fixed attribute of a person and can be characterized as an "ongoing process" of changing from context to context and even from moment to moment in the interaction (Beijaard et al, 2004; Gee, 2001). Aligning with the concept of identity, professional identity is also open to continuous redefinition through negotiating one's self as a social being. It is especially related to dealing with one's professional functioning and includes one's professional role, abilities, and values that lead to commitment to a profession (Korthagen, 2004; Maclean & White, 2007). Professional identity seems to be a more complex concept because it is not clear what aspects and to what extent these aspects are integrated in such an identity (Knowles, 1992).

The concept of professional identity is also used in various ways in the area of teaching and teacher education. Whereas some studies have connected teacher identity to teachers' conceptions or images of the self (e.g., Knowles, 1992; Nias, 1989), other studies have emphasized teachers' roles (e.g., Volkmann & Anderson, 1998) or reflection in the development of teacher identity (e.g., Maclean & White, 2007; Walkington, 2005). According to Tickle (2000), two aspects, other people's expectations including socially accepted images and what teachers themselves value as important in their professional work, seem intermingled in professional identity, but researchers have typically emphasized one or the other. If the former was emphasized by Knowles (1992) who argued that teachers' images of the self strongly determined in their development as teachers and their way of teaching, Mayer (1999) was more concerned with the latter, claiming that the focus of teacher identity should be distinguished from that of teachers'

functional roles. A teaching role refers to performance required as a teacher, whereas a teaching identity is a more personal characteristic related to how one identifies with being a teacher or how one feels as a teacher (Mayer, 1999).

Linking Conceptions of Teaching and Teacher Identity

Although function and identity are intertwined aspects of developing into a professional (Walkington, 2005), Mayer (1999) defined them as two different concepts, and his definition of teacher identity implied how conceptions of teaching can be linked to teacher identity. According to Mayer (1999), teacher identity is based on core beliefs that one has about teaching and being a teacher, core beliefs that are continuously being formed and reformed. He also believed that true professional teaching should involve an intellectual dimension besides actually doing the job or performing the skills. The core beliefs about teaching, as the intellectual dimension, seem to encourage teachers to engage in ongoing change in their professional identity as flexible and lifelong learners.

Whereas Mayer (1999) claimed teachers' conceptions or beliefs about teaching function as a sort of steering in the process of teachers' professional identity formation, Korthagen (2004) discussed the reverse direction of influence, how identity and conceptions and beliefs are related. Korthagen suggested an umbrella model of levels of change, also called the onion model, as a framework for teachers' reflection and development for being a good teacher. The onion model has six levels of change including the environment as the outermost level, followed by behavior, competencies, beliefs, identity, and mission as the innermost level. According to Korthagen, professional identity is created in the form of a Gestalt that includes an unconscious set of

needs, images, feelings, values, role models, previous experiences, and behavioral tendencies. Teachers become aware of the Gestalt by describing their life path or storytelling, and the Gestalt influences the outer levels of beliefs, competencies, and behavior.

Although the direction of relationship between conceptions of teaching and teacher identity is not known exactly, there seems no argument about the idea that conceptions of teaching are involved in the formation of teacher identity. Another way to put the matter is that teacher identity is involved in the development of conceptions of teaching. Through reviewing 25 studies on professional identity conducted during the period 1988-2000, Beijaared et al. (2004) found that preservice teachers' beliefs that are determined by their biographies are important constituents of teachers' professional identity formation. Similarly, Sugrue (1997) asserted that preservice teachers' lay theories and teaching identities may be formed at a young age and are shaped significantly by immediate family, significant others or extended family, the apprenticeship of observation, atypical teaching episodes, policy context, teaching traditions and cultural archetypes, and tacitly acquired understandings.

In summary, the development of conceptions of teaching and the affirmation of teacher identity are closely related (Cabaroglu & Roberts, 2000). As Bullough (1997) claimed, "Teacher identity -what beginning teachers believe about teaching and learning and self-as-a-teacher- is of vital concern to teacher education" (p.21). Considering Walkington's (2005) perspective on the relationship between teacher identity and teaching practice, that "The uniqueness of every teachers' approach to teaching, shaped

by personal teacher identity is what makes every classroom 'look' different" (p.54), studying the link between conceptions of teaching and teacher identity promises to provide a more integrated understanding about why preservice teachers teach in the particular ways they do and how teacher educators can help them become better teachers.

Teacher Preparation Programs

The last section of Chapter 2 addresses how previous studies have researched the topic of preservice teachers' learning to teach and what has influenced the research. In this section, three mainstream research paradigms on teaching are briefly described and two representative models of preservice teachers' professional development are reviewed.

Research on the Nature of Learning to Teach

It is possible to say both that a preservice teacher is neither a teacher nor a student, and that a preservice teacher is a student and, at the same time, a teacher. Such complexity may mean that preservice teachers are different kinds of students or learners from other undergraduate students in general. Pajares (1992) described preservice teachers as "insiders" in terms of having developed familiarity about their professional practice from having been in classrooms for so many years as students. These years as students may lead preservice teachers to have some knowledge and beliefs about teaching that can shape their current experience of learning to teach including developing their practice. Similarly, Calderhead (1991) claimed that preservice teachers would bring their past teaching and life experiences into their teacher preparation, but that such knowledge may also impede them from appreciating the complexity of teaching and developing more sophisticated conceptions about teaching and learning processes.

According to Calderhead (1991), learning to teach is different from other forms of learning in academic life because it does not emphasize learning of the abstract "book knowledge" of traditional disciplines. Learning to teach may include multiple forms and be much more complex than other forms of learning; various areas of knowledge growth occur at the same time, and developing particular attitudes towards children and the task of teaching and learning is involved in the process. Calderhead also mentioned that being a student teacher is a stressful process because a student teacher needs to cope with constant feedback, both explicit and implicit, about his or her performance of the task and also about the self as a person. Similarly, many researchers have discussed that preservice teachers experience tensions or difficulties between demands of the university program and the school that structures their first teaching experiences (Feiman-Nemser & Buchmann, 1985; Smagorinsky et al, 2004; Valencia et al., 2009). Feiman-Nemser and Buchmann referred to the *two-worlds pitfall* in describing the clash between two different sets of goals and visions of learning to teach in these two contexts.

Influences on Learning to Teach

In spite of such complexities, Feiman-Nemser (2008) offered a succinct conceptualization of what is involved in learning to teach. According to her, learning to teach has four broad themes: learning to *think* like a teacher, learning to *know* like a teacher, learning to *feel* like a teacher, and learning to *act* like a teacher. Her thematic framework of learning to teach covers a wide range of learning issues such as a transition to pedagogical thinking, development of knowledge and beliefs, engaging teachers' emotions and identity, establishment of a teaching repertoire of skills, learning

appropriate strategies and routines, and developing adaptive expertise. As her thematic framework implied, research on teacher learning seems to be a complex area of inquiry. Feiman-Nemser mentioned that the teacher learning field extends over several fields of research and areas of study such as research and theories of learning, studies of teaching and teacher knowledge, and studies of school change and teaching culture. Through reviewing the research tradition on teaching, we can understand what has been the focus of teacher education programs.

Research tradition on teaching. Preservice teachers' learning to teach needs to be understood or researched in terms of the two aspects of teaching and learning because their learning in the teacher preparation program actually includes their teaching (i.e., student teaching) and also should be related to their future teaching. Therefore, it seems important to discuss the mainstream research tradition on teaching based on reviews published by Shulman (1996) and Floden (2001). Both authors wrote the first chapter of the Handbook of Research on Teaching, in the third and fourth edition, respectively. Whereas Shulman discussed research on teaching in terms of seeking a knowledge base for teaching, Floden focused on discussing research on the effect of teaching related to student learning. These two reviews offered a comprehensive consideration of paradigms for research on teaching in line with Gage's (1963) review in the first edition of the Handbook. According to these three landmark reviews, mainstream research on teaching can be distinguished into three paradigms: process-product, student mediation, and classroom ecology. Each paradigm has taken a strikingly different research focus and unit

of inquiry, and the meaning of teaching effectiveness has also been defined differently (see Table 2).

Table 2. Mainstream Research on Teaching (Shulman, 1986; Floden, 2001)

Research paradigm	Process-product	Student mediation	Classroom ecology
Research focus	▪ Define the relationship between what teachers do in the classroom (process of teaching) and what happens to their students(product of learning) ▪ Seeing classrooms as reducible to discrete events and behaviors that can be observed for generalization across settings and individuals	▪ Students' social and intellectual meditational processes in their classroom life. ▪ Teaching is mediated by the sense the learner makes of the social context of the classroom situation	▪ Attention to the interaction between persons and their environments ▪ Treating teaching and learning as continuously interactive processes; seeing the classroom context as nested within other contexts
Unit of inquiry	The behavior or thought of the individual teacher or student	Individual learner's mental representation and construction of the cognitive content taught & active interpretation of the social reality of the classroom	The ecosystem of learner, classroom, teacher, school, and community
Meaning of effectiveness	Criteria of effectiveness is outside the immediate classroom setting being observed (e.g., students' achievement measured by end-of year or unit tests)	The consequence of teaching can only be understood as a function of what that teaching stimulated the learner to do with material	Criteria of effectiveness is within the situation (e.g., equality of opportunities to participate, indicators of clear communications of meaning between teacher and students, smoothness of interchanges, transitions)

With respect to influences on teacher education, Floden (2001) pointed out that the attention shift to research on teacher knowledge and thinking was made as a result of objections to the behaviorist aspects of process-product research, and the number of studies taking this approach increased since 1986. In fact, Kagan (1992) reviewed 40

learning-to-teach studies conducted between 1987 and 1991, and she reported that all research used naturalistic and qualitative methodology. Of those, 28 studies dealt with preservice teachers' knowledge and beliefs or images about teaching, pupils, and the self as a teacher. Based on the patterns of findings from the selected studies, Kagan (1992) suggested five components of preservice or novice teachers' professional growth: (1) an increase in metacognition about what they know and believe and how they are changing, (2) the acquisition of knowledge about students, (3) an attention shift from self to students, (4) the development of standard procedures in teaching, and (5) growth in problem solving skills. Kagan's model of professional growth will be discussed further in the next section.

By including 93 empirical studies about how beginning teachers learn to teach, Wideen et al. (1998) extended their examination to critique the quality of that research. They mentioned that studies of beginning teachers' beliefs were dependent on contextual issues such as the program in which the study took place, the research methods, or the researchers' perspectives themselves. Wideen et al. identified three traditions both in teacher education and in research through reviewing the studies inductively: a positivist tradition, a progressive tradition, and a social critique tradition. Each tradition has a different view of the learning-to-teach process and research focus. From a positivisit tradition, teacher education is a process of providing preservice teachers with pre-determined knowledge about teaching and learning whereas in a social critique perspective, broader issues including preparing teachers to deal with students' diversity are the concern of teacher education. Wideen et al. pointed out that the contextualization

of each research study contributed to the validity of these studies but, at the same time, it caused problems in making comparison and cross-generalization.

Influences of learning theories on teacher education. As discussed above, research paradigms of teaching have reflected different processes of learning-to-teach and contributed to establishing developmental models of teacher education. In fact, mainstream research paradigms have seemed to follow the line of development of learning theories. It is actually not a surprise or a new insight at all that teacher learning includes learning issues and is influenced by the development of learning theories. Ismat (1998) provided a succinct connection between learning theories and teacher education when constructivism emerged as a popular theoretical perspective in the education field. Ismat distinguished constructivism into two perspectives, psychological constructivism and social constructivism based on the interpretations discussed by Richardson (1997) and Vadeboncoeur (1997): (1) education for individual development versus education for social transformation, and (2) the degree of influence that the social context has on individual cognitive development.

According to Ismat (1998), *psychological constructivism* (or Piagetian constructivists) assumes that students bring their ideas, beliefs, and opinions to classrooms and that these need to be altered or modified by a teacher during their learning. In other words, knowledge construction occurs as a result of working through the dilemmas between what students bring and what teachers facilitate. On the other hand, in the *social constructivism* (or Vygotskian constructivism perspective), individual students construct knowledge in transaction with the environment and both the individual

and the environment are changed in those processes. As for the effort of translating a theory of learning into a theory of teaching, constructivist teacher education has two major traditions: the developmental and social deconstructionist traditions (Ismat, 1998). The developmental tradition programs in teacher education are characterized by substantial direct instruction in theory and practice and mostly evaluated as "overly prescriptive." By contrast, programs influenced by a social deconstructionist tradition focus on helping students to deconstruct their own prior knowledge and attitudes and to comprehend how these understandings evolve. Critical analysis and structured reflection on coursework knowledge and on practical experience should be emphasized.

Similarly, Borko and Putnam (1996) took cognitive psychology in order to organize research in terms of a psychological approach to teacher learning. As the central focus of cognitive psychology is the mental life of the individual or process of thought, Borko and Putnam addressed primarily how the knowledge and beliefs of teachers change over time as novice teachers learn to teach and experience teaching practices. They provided a definition of learning as "an active, constructive process" (p.674) that is substantially influenced by an individual's existing knowledge and beliefs and is also situated in particular contexts and cultures. Accordingly, they emphasized the role of prior knowledge or beliefs in learning to teach that serve as filters in shaping what and how preservice teachers learn from teacher education experiences. With a perspective consistent with Richardson's (1996) and Calderhed's (1996), Borko and Putnam also mentioned that teachers' knowledge and beliefs must be integrally linked to or situated in

contexts in which they are to be used. They did not, however, explain clearly how the situativity of knowledge or beliefs can be dealt with in teacher preparation.

Later, Putnam and Borko (2000) seemed to move to a more situative perspective on teacher education and offered a brief overview of three conceptual themes as central to the situative perspective: (1) cognition is situated in particular physical and social contexts, (2) the nature of cognition is social, and (3) cognition is distributed across the individual, other persons, and tools. Although they asserted that those situative assumptions about cognition would provide powerful and new lenses for examining teaching, teacher learning, and the practice of teacher education for both preservice and inservice teachers, they did not discuss how it would work in the process itself of teacher learning. However, their practical suggestions about where and how teachers' learning should be situated and how the use of discourse communities and pedagogical tools are helpful for teacher learning were valuable enough to draw teacher educators' attention.

Envisioning a New Model of Learning to Teach

Although several models or theories that describe teacher development have been presented over the past three decades (e.g., Berliner, 1988; Fuller, 1969; Huberman, 1989; Nias, 1989; Ryan, 1986; Sprinthall & Thies-Sprinthall, 1980), models focusing on preservice teachers' learning to teach seem nevertheless few. Accordingly, the models suggested by Hollingsworth (1989) and Kagan (1992) are valuable and significant in understanding preservice teachers' professional development. Hollingsworth researched two cohorts of preservice teachers in a graduate teacher education program and created a model of learning to teach through doing within and across case studies (see Figure 1).

By contrast, Kagan developed a model of professional growth through reviewing 40 studies published or presented between 1987 and 1991. She did not provide a diagram, but Levin (2003) drew her interpretation of Kagan's model as is shown in Figure 2.

As seen in Figure 1, Hollingsworth divided the content of a teacher preparation program into three topics, general management, subject content and pedagogy, and academic classroom tasks. Preservice teachers develop various levels of teaching knowledge by interacting with both program content and their internship experience depending on their prior beliefs and contextual factors. For example, after general managerial routines are acquired, presrvice teachers become focused on subject specific content and pedagogy. Likewise, combined management and subject matter routines are acquired before students' learning from tasks become a focus of preservice teachers' attention. Acquiring each new level of knowledge affects changes in preservice teachers' prior beliefs. Hollingworth's model shows the dynamic interplay between personal prior beliefs, program content, and contextual factors underlying such intellectual change.

According to Kagan, preservice teachers use knowledge of students acquired in the teacher education program to modify or reconstruct their images of self as teachers that are associated with their biographies. Once the image of self as a teacher is resolved, presrvice teachers' attention shifts to their students. Preservice teachers mostly approach their student teaching with an optimistic and oversimplified picture of classroom practice, which leads them to be obsessed with class control or design of instruction. As interacting with their students increases, preservice teachers come to acknowledge that their personal beliefs and images are incorrect and turn their attention to promoting

students' learning. Kagan considered the resolution of self as teaching and formation of standard instruction and management routine as two important developmental tasks. She mentioned that preservice teachers' problem solving skills would evolve after these developmental tasks were accomplished.

Figure 1. Hollingsworth's (1989) Model of Learning to Teach

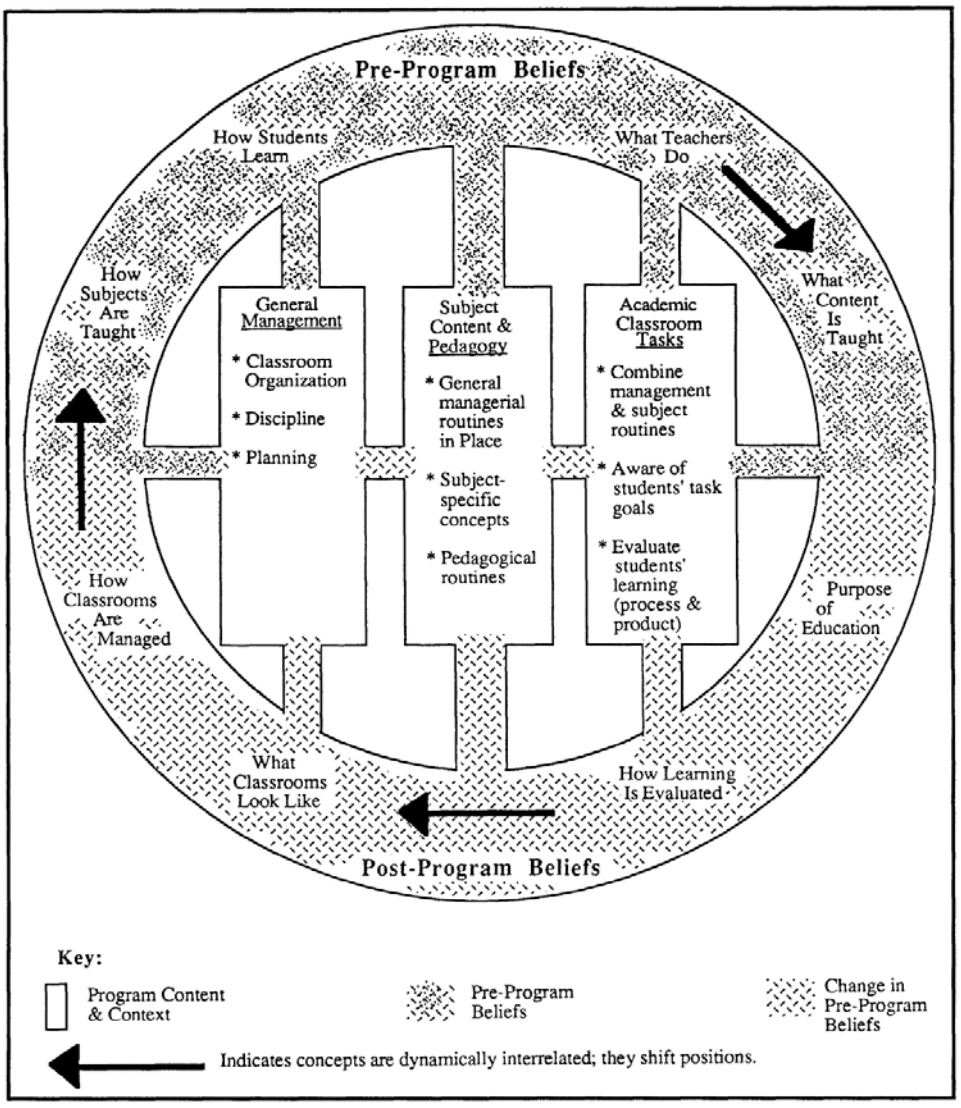
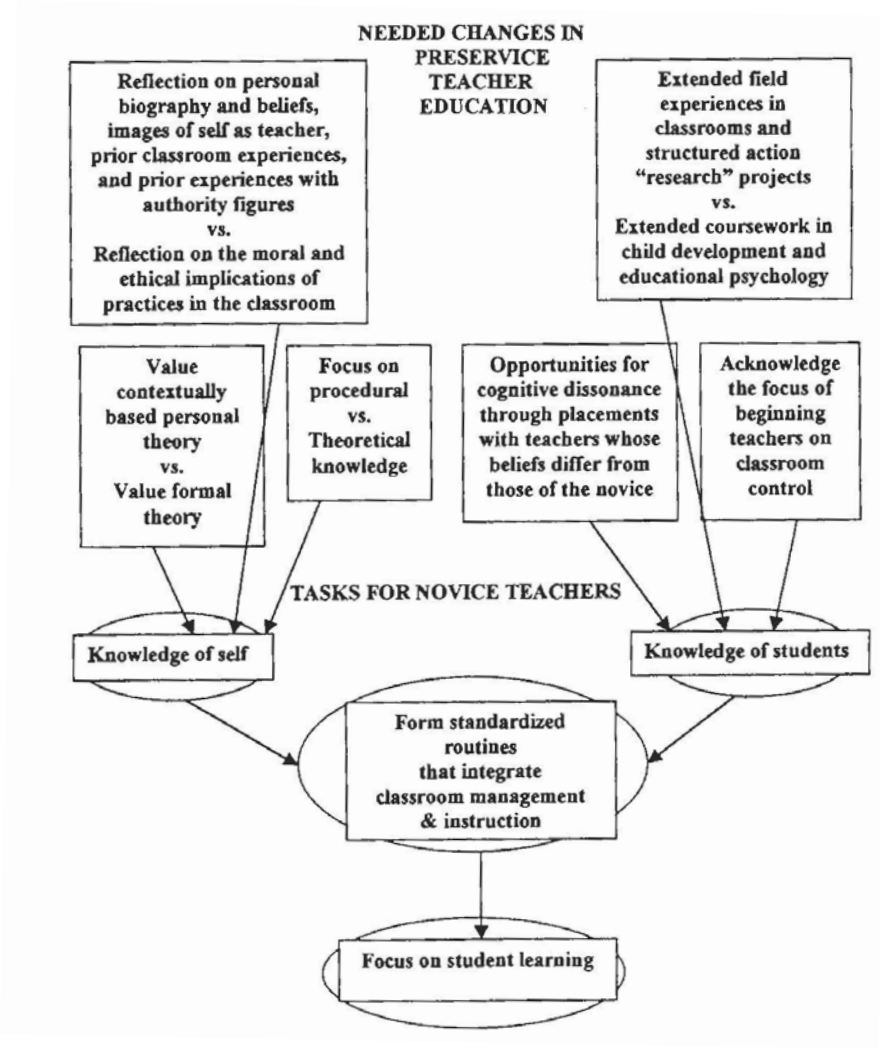


Figure 2. Kagan's (1992) Model of Preservice and Beginning Teacher Development Created by Levin (2003)



Kagan's and Hollingsworth's models share two common themes. First, both suggest preservice teachers' prior beliefs play a critical role in determining how much knowledge they acquire in teacher education programs and how this knowledge is interpreted. The other common theme is that both consider forming standard routines that integrate management and instruction as an important task in a teacher education program, and both discuss how preservice teachers' attention shifts from class control to student

learning itself. In addition, both models were theoretically grounded in cognitive psychology and information processing (Levin, 2003), a reasonable base considering that they were offered at the end of 1980s and the early 1990s. However, as these models did not attend to socioconstructivist and sociocultural views of teaching and learning, a gap between in the literature existed that my study attempted to resolve at least in part.

Thus, I agree with Kagan's argument that preservice teachers' initial focus on the self is a necessary and crucial element in teacher development, and that the cognitive dissonance they experience from their internships facilitates their reconstruction of beliefs. However, she did not explain in detail how the change in preservice teachers' images or sense of self as teachers occur and how the ways of thinking about students and learning influence the process of change. In regards to Hollingsworth's model, I like her classification of program content and contexts, but she did not consider the relationship among these three contexts and the possibility of relative development (one area may be more likely to change than others). In addition, Levin (2003) pointed out the lack of coherent or agreed upon theories of teacher development, although she appreciated the heuristic value of different models that have been offered from different theoretical perspectives. Therefore, I hoped that my study would be able to allow me to build a new comprehensive model of learning to teach grounded in a situative perspective on learning so that it could contribute to the theory of teacher development and guide teacher educators to support preservice teachers' development.

Summary

Three major constructs from the literature have been discussed in this chapter: conceptions of teaching, epistemological beliefs, and teacher identity. In addition to these three areas, the nature and models of preservice teachers' learning to teach were discussed in the last section. These constructs have been researched extensively and have each built respective solid research bases. However, my study attempted to put all three constructs together to elucidate how preservice teachers' knowledge and ways of thinking about teaching grow and change during their teacher preparation program and how they resolve images of self as teachers as well as what influences those processes.

In my study, *conceptions of teaching* is defined as general pedagogical knowledge and beliefs about teaching, learning, and the roles of teachers and learners. I view this construct as developmental and changeable beliefs that are formed or rebuilt during a teacher preparation program. As another important developmental issue, teacher identity was discussed. Aligning with a socioconstructivist approach, teacher identity is seen not as a fixed and unitary attribute of a person, but as an ongoing multiple recognition in a given context throughout one's teaching career. In my study, given the two different contexts experienced, the college classroom and the elementary classroom, preservice teachers' answers to the question "Who am I at the moment?" as well as the question "Who do I want to become as a teacher?" can be seen as their teacher identity.

In the developmental processes of the two dimensions, conception of teaching and teacher identity, how epistemological beliefs function was the other quest for my study. Epistemological beliefs are seen as situated (i.e., socially produced, shaped by one's

social and cultural settings, and gradually changing through social interaction) rather than as individual psychological characteristics one holds. Lastly, the investigation of the relationship between conceptions of teaching, epistemological beliefs, and preservice teachers' student teaching is a critical and interesting task in this study. Whether or not teachers teach students according to their espoused beliefs still remains as a controversial issue in the teaching and teacher education field. Considering that one critical goal for teacher educators is to encourage teachers to apply what they have learned or developed during their teacher education program to their actual teaching, it must be an important topic to be addressed by research.

CHAPTER 3

METHOD

With the foundation laid out in Chapter 2 in mind, I was particularly interested in preservice teachers' developmental process in their conceptions of teaching and teacher identities; how conceptions and teacher identity developed, what influenced the process, and how they influenced preservice teachers' teaching practice. I adopted a longitudinal qualitative research design with the objective of rendering an in-depth exploration of such developmental processes of preservice teachers. In this chapter, I describe the methods and procedures that I used to collect and analyze data in my investigation for this study. The chapter is divided into the following five sections: (1) overall methodological approach, (2) research context and participants, (3) data sources and procedure for data collection, (4) data analysis, and (5) methods used to establish the trustworthiness of the study.

Overall Methodological Approach

This study grew out of my interest in the issue of "becoming." Everyone becomes someone: a child becomes an adult, a girl becomes a mother, or a student becomes a teacher. The becoming may not simply be a matter of changing status or growing naturally and outwardly. It may involve a more complex and dynamic process. The purpose of this study was to explore what developmental processes preservice teachers experienced in becoming a teacher in terms of their conceptions of teaching and their identity of self-as-a-teacher. To capture this process, I designed this longitudinal qualitative study, adopting von Wright's (1971) methodological ideas about "explanation"

versus “understanding.” In von Wright’s view, understanding differs epistemologically from explanation, influencing the development of interpretive approaches in hermeneutics, phenomenology, and language analysis. Although ordinarily, there is not much distinction between the words *explain* and *understand*, and one could say that explanations are intended to promote understanding, von Wright asserted that understanding has a psychological ring that explanation does not have; as a form of empathy, understanding is an informal appreciation of phenomena rather than a recognition of the cause-effect connection. Influenced by his ideas, my study was an inquiry aimed at understanding preservice teachers’ processes of becoming a teacher, especially in developing their conceptions of teaching and teacher identities, rather than changing their beliefs about teaching. Accordingly, the study was initiated at the beginning of the students’ program, and proceeded throughout their completion of the program, and consisted of naturalistic observations and interviews over the three semesters.

Although I relied primarily on naturalistic observations of preservice teachers’ learning to teach in teacher preparation courses and their teaching lessons, collections of their written work, and face-to-face interviews, I also used some pre-developed measures in the second and third semesters of data collection. Students’ responses to these measures had three uses. First, quantitative data provided descriptive information about each individual participant. Second, they helped to answer some of the specific research questions in a simpler way. Last, they were used as supplemental materials for preparing interview questions and validating students’ answers. The methods used for the data

analyses were inductive and interpretative, adopting Corbin and Strauss' (2008) guidelines for coding and analyzing qualitative data. I developed emergent categories from what participants did and what they told me, and did not intend to test the validity of established concepts or presumed relationships. Representing an interpretative stance (Lincoln & Guba, 1985), I attempted to explore fully the complexity of preservice teachers' interactions with their contexts and to consider the multiple aspects involved in their learning to teach in order to understand the phenomenon of becoming a teacher comprehensively and holistically.

Participants and Context

Participants in this study were eight female preservice teachers (5 Caucasians, 2 African-Americans, and 1 Latina). In the sections below, I first describe my participants and the process of recruiting them before describing the teacher education program in which my participants were enrolled.

Participant recruitment

This study started from my broad interest about how preservice teachers "become teachers." In the beginning of the Spring of 2009, the initial phase of the research involved 16 of 18 students who were enrolled in one undergraduate preservice education course taught in the first semester of the teacher education program. At that time, I was working as the TA for the course. The students were taught as a cohort, which meant they took all of their courses together throughout the teacher preparation program and did their internships in the same district. Because my research interest was to see preservice teachers' continuous professional growth during the whole teacher education program, I

decided to continue tracking the cohort of preservice teachers. My recruitment strategy was convenience sampling based on participant availability. The final group of participants included eight volunteers who agreed to participate in the study for all three semesters.

Table 3. Participants' Background Information

Pseudonym	Ethnicity	Original major	Teaching experience	Internship grade level		
				2009 Spring	2009 Fall	2010 Spring
⊙ Madison	Caucasian	Math	2-3 semesters	Kinder	5th	3rd
Michelle	Caucasian	Education	2 years	Kinder	1st	3rd
Paula	African-American	Education	3 years	Kinder	1st	1st
⊙ Jackie	African-American	Education	2 years	Kinder	4th	4th &1st
Sally	Latina	Psychology	2-3 semesters	Kinder	4th	Kinder
Maxine	Caucasian	Business	1 semester	Kinder	3rd	Kinder
Jane	Caucasian	Education	2-3 semesters	Pre-K	4th	3rd
⊙ Heather	Caucasian	Speech Pathology	2-3 semesters	Kinder	4th	Pre-K

⊙ indicates focal students for case analyses

As summarized in Table 3, all participants were female students whose age varied very little, one or two years; when they were about to graduate from the program, their ages ranged between 21 and 23. Four of the students had started their undergraduate work as non-education majors, but had transferred to Education during their freshman or sophomore year. Students were required to do three internships including their student teaching, and they were assigned to elementary schools in the same low income-based

district. For the first internship, they were limited to working with only Kindergartners or Pre-Kindergartners, but for the other two internships, schools and grade levels usually depended on students' choices.

Description of the teacher preparation program

My participants were engaged in a three-semester preparation program that was called the *Professional Development Sequence (PDS),* resulting in preparation for Pre-K to-4th teaching certification. Before entering the program, students had been required to take some preliminary educational courses such as "Play in early childhood," "Individual differences," "Children's movement," et cetera. Once they began the program, students were grouped in cohorts, depending on their choice guided by their specific interest, and supervised by a program coordinator. The PDS program had approximately ten cohorts at the same point in the program with one program coordinator and two or three facilitators for each cohort. My participants were all in the same cohort, focused on "cultural diversity," Except for Sally and Jane, this cohort was their first choice. Every cohort had an online communication forum on Teachnet where students could share information and exchange emails with each other as well as with their coordinator and their professors. The coordinator supervised students' coursework and placement schedules in general, and the job of the facilitators was to observe students' teaching in placement classrooms and to give them advice about their lessons.

As shown in Table 4, in the PDS program, the hours of working in the field increased with each semester so that students were gradually exposed to more school environments, and could become familiar with school curriculums, routines, and events.

In the last semester, students had to be in their placement school every day and work almost all day long except for the day when they took their last required course at the university. During student teaching, individual students had to prepare teaching lessons with the cooperation of their cooperating teachers under their program coordinator's supervision.

Table 4. Overview of the PDS program

	Internship (Hours & Grade levels)	Coursework
1 st. semester (2009, Spring)	12-14 hours/week Pre-K or K classroom	Applied Human Learning Elementary Language Arts Methods Guiding Young Children in Groups Elementary Social Studies Methods
2 nd. semester (2009, Fall)	16 hours/ week First through fourth grade classroom	Elementary Reading Methods School Organization and Classroom Management Addressing Reading Difficulties Elementary Mathematics Methods
3 rd. semester (2010, Spring)	Apprentice Teaching First through fourth grade classroom Students are at the school M-F 7:30 a.m. to 3:30 p.m.	Elementary Science Methods Elementary Grade Teaching Practicum

Table 5 illustrates one example of the schedule, called a *pacing guide*. Note that in this table, the name *apprentice teacher* is used to refer to preservice teachers. Student teaching began in the second week of the 14 weeks of the last semester. At first, preservice teachers taught only one or two subjects using their cooperating teachers' lesson plans. Gradually they took over more subjects and used more of their own lesson plans. Finally, in the middle of semester, they had to teach all subjects using only their own lesson plans, hence the name of period *Total teaching*. In addition to their

cooperating teacher, students also had their coordinator and facilitator observe their teaching three times respectively during the total teaching period.

Table 5. An example of Students' Pacing Guide for Student Teaching

Dates	1/25-1/29	2/1-2/5	2/8-2/12	2/15-2/19	2/22-2/26	3/1-3/5	3/8-3/12	3/22-3/26	3/29-4/2	4/5-4/9	4/12-4/16	4/19-4/23	4/26-4/30 TAKS	5/3-5/7
Content Areas	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14
Science		**CTP**	**ATP**	**ATP**	**ATP**	**ATP**	**ATP**	**ATP**	**ATP**	**ATP**	Give back 2 subjects this week	Give back 2 subjects this week	Give back last subject	
Writing			**CTP**	**ATP**	**ATP**	**ATP**	**ATP**	**ATP**	**ATP**	**ATP**				
Math				**CTP**	**ATP**	**ATP**	**ATP**	**ATP**	**ATP**	**ATP**				
Reading						**CTP**	**ATP**	**ATP**	**ATP**	**ATP**				
Social Studies							**CTP**	**ATP**	**ATP**	**ATP**				

*CTP = Teach using Cooperating Teacher's Plans, ATP = Teach using Apprentice Teacher's Plans
*Shaded: Total teaching period

Data Sources and Procedures for Data Collection

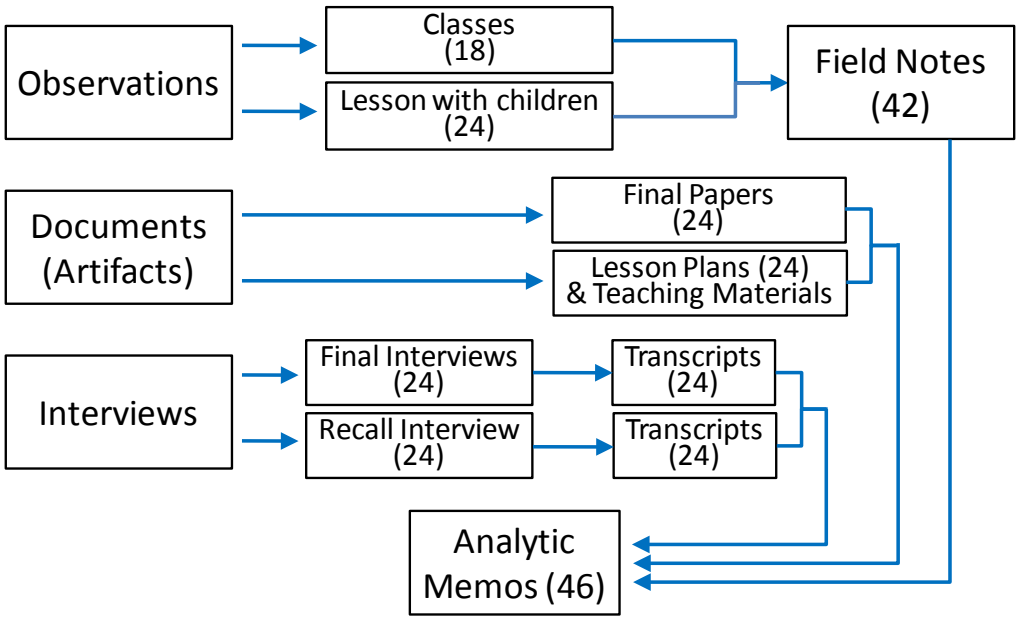
My data collection began in January, 2009, and was carried out intensively until the end of May, 2010. For this longitudinal study, I used multiple data collection techniques, including observation, audio-taping, interviews, collection of artifacts, and administration of online surveys, and maintained lengthy and continuous relationships with the preservice teachers in order to attain an in-depth look into the realm of their beliefs development and achieve solid data triangulation. The primary source of data was the transcripts of interviews that were made immediately after interviews or later from the audio recoded data. In addition to the transcripts of interview data, each semester had different data sources: students' final papers about their teaching philosophy for the first semester; transcripts of small group (called *Book Club*) discussions, students' final papers

about a personal system of discipline, and students' responses to three measures from the second semester; transcripts of audio recordings of student teaching, participants' lesson plans, and students' responses to four measures from the third semester. As supplemental data, students' final papers that were collected at the semester's end were used mainly for validating the interview data. Regarding students' lesson plans and teaching materials, these were usually collected before my observation of the lesson so that it guided my observation of the preservice teacher's teaching and helped me to construct specific interview questions for the recall interview that was conducted right after the teaching. Observational field notes and analytical memos were also common data sources across the three semesters. Both were composed throughout the study and importantly used when making transcription decision as well as in later analysis session. All data sources are summarized in Table 6. Figure 3 represents how qualitative data sources turned into analytic memos. In the sections below, I first describe in more detail the measures I used. I then describe how I conducted naturalistic observation and my process of conducting the interviews. Lastly, I describe my role or stance as a researcher for this study.

Table 6. Data Sources by Semester

	2009, Spring	2009, Fall	2010, Spring
Quantitative Data sources	•	EBI, TLCQ, SPRS	EBI, EWV survey, TLCQ, SPRS
Qualitative Data sources	▪ Final paper about teaching philosophy	▪ Transcript of book club discussions ▪ Final paper about personal system of discipline	▪ Transcript of audio recordings of student teaching ▪ Lesson plans
Common sources	Transcript of interview, Observational field notes, Analytical memos		

Figure 3. Qualitative Data Sources and Overall Process of Data Reduction



Measures

The measures administrated on line at the end of the second and third semesters. The students completed the Epistemological Beliefs Inventory (EBI), Teaching and Learning Conceptions Questionnaire (TLCQ), and Student Perception and Reflection Survey (SPRS). In the third semester, the Epistemological World Views (EWV) survey was added to the other three measures. All measures were self-report instruments, and the scale for all instruments was a five-point Likert scale. The questionnaires to measure epistemological beliefs and conceptions of teaching and learning were adapted from existing measures, but some items were reworded or modified in order to use language more appropriate and make them clearer (these items are in bold type in the Appendix C). The Student Perceptions and Reflection Survey was created by me for the purpose of measuring participants' awareness of their program philosophy and of the teaching

approaches of their instructors and cooperating teachers for each semester. I describe each measure in more detail below.

Epistemological Beliefs Inventory (EBI). The EBI was constructed based on the criteria for each of the five epistemic factors described by Schommer (1990) and revised by Schraw et al. (2002): Omniscient Authority (OA), Certain Knowledge (CK), Simple Knowledge (SK), Quick Learning (QL), and Innate Ability (IA). Omniscient Authority (OA) refers to knowledge being passed on by authoritative sources and experts or knowledge being obtained through one's justification and reasoning. The Certain Knowledge (CK) dimension deals with the extent to which a person sees knowledge as permanent, certain, and unchangeable. The Simple Knowledge (SK) dimension measures the extent to which a student sees knowledge as simple and easily understandable. The Quick Learning (QL) dimension measures whether one believes learning requires hard work and effort. Last, Innate Ability (IA) dimension refers to one's beliefs that ability is innate and fixed on one hand, or changeable or acquired on the other.

Each scale asks students the degree of agreement using a five-point Likert scale in which 1 corresponds to "strongly disagree" and 5 corresponds to "strongly agree." Higher scores in total represent more sophisticated epistemological beliefs. Schraw et al. (2002) reported that scores on the EBI had better test-retest reliability than the Epistemological Beliefs Questionnaire (EBQ) proposed by Schommer (1990), and also claimed that the EBI explained 20% more sample variance with one half the numbers of items than the EBQ. Schraw and his colleagues reported that reliabilities for the Omniscient Authority,

Certain Knowledge, Quick Learning, Simple Knowledge, and Innate ability factors were .65, .63, .60, .66, and .63, respectively.

Epistemological World Views survey (EWV). The EWV survey was designed by Schraw and Olafon (2002) to elicit students' beliefs about knowledge and the extent to which they agreed with each of three world views: realist, contextualist, and relativist. The students were asked to read brief summaries of each of three world views and indicate the extent of their agreement using a five-point scale, ranging from strongly agree to strongly disagree (see Appendix B). According to the authors, there were no statistically significant correlations among the three world views, although there was a nonsignificant positive relationship between the contextualist and relativist world views ($r = .27$). I additionally used this survey because I expected that it would be useful in explaining students' approaches to teaching depending on their epistemological positions.

Teaching and Learning Conceptions Questionnaire (TLCQ). The TLCQ was developed by Chan and Elliott (2001) based on a literature review of relevant topics and dialogues with preservice teachers about their concerns, thoughts, and beliefs about teaching and learning. The authors eventually developed a 35-item questionnaire through conducting several pilot studies with repeated processes of factor analyses. The 30-item questionnaire was validated by confirmatory factor analysis. I used the validated TLCQ to assess preservice teachers' conceptions of teaching. The TLCQ measure has two dimensions, *Traditional Conception* and *Constructivist Conception*. In the traditional conception, teaching is seen as a transfer of knowledge from an authority or expert to a novice, and learning is equated to receiving knowledge, whereas in the constructivist

conception, learning is the creation of meaning by learners' reasoning, and teaching is viewed as a facilitation of the learning process.

Each scale item asks students the degree of agreement using a five-point Likert scale in which 1 correspond to "strongly disagree" and 5 correspond to "strongly agree" and higher scores in total represent a more constructivist view of learning. Chan and Elliott reported that the Cronbach alpha value of the whole scale was about .86, and both subscales were about. 84. In addition to the TLCQ, I added one more item, "what is teaching?," based on Kember's (1997) categories of conceptions of teaching, preservice teachers' responses to my preliminary survey, and dialogue with an expert on teacher education. The format of the item consisted of nine brief definitions of teaching statements such as "imparting information, " "transmitting structured knowledge," "providing lifelong knowledge and skills for a successful life," and so on. For each statement, students were required to indicate the extent of their agreement, ranging from very close to very different (see Appendix C).

Student Perception and Reflection Survey (SPRS). In order to assess students' current awareness about their teacher education program beliefs or philosophy, their instructors' conceptions of teaching, and their cooperating teachers (CT)' approaches to teaching, I created four items. Except for the first item for asking students' perceptions about the program's beliefs, the other three items were repeated to allow students to recall and rate their instructors and CTs in the previous semester. Responses had five choices based on Kember's (1997) differentiation between teacher-focused and student-focused perspectives: Very teacher-focused, Teacher-focused, Half & Half, Student-

focused, and Very student-focused. For the first item, the response of "don't know" was added (see Appendix D).

Naturalistic Observations

My classroom observations were conducted in two different settings: the university classrooms and participants' placement school classrooms. Because the focus of my study was on exploring preservice teachers' developmental process, it was vital for the study that I observed how they built their conceptions of teaching through their coursework and exemplified their beliefs through the act of teaching and how they positioned themselves or were positioned by others in two different contexts. I took field notes and audio-recorded all sessions that I attended during the three semesters (2009 Spring, 2009 Fall, and 2010 Spring). In the sub-sections below, I describe in detail the classroom settings and the focus of my observations, including the data collection activities that accompanied my observation such as collecting documents, making field notes, and writing analytic memos.

Observation of university classes. My observation started in the spring of 2009. The course that I observed for 3 hours per week for 16 weeks was a required course typically taken in the first semester of the program. The instructor of this course had ten years of teaching experience in elementary schools, and she was very knowledgeable about the PDS program and the students' placement, as well as the public local school system. Thus, she designed the course to discuss different topics every week that were directly related to issues relevant to teachers and teaching, such as self-regulated learning, stereotypes, inclusion, social isolation, parental involvement, technology, and so on. In

addition, the instructor often provided opportunities for students to discuss their field experiences in class discussion, and asked them to write three papers and three critical incidents related to their internship experiences. The course was not intended to discuss or change pre-service teachers' beliefs or conceptions about teaching per se, but brought out various teaching issues so that students would understand the complexity of teaching. The instructor usually started with the question of what students knew and wondered about the topic from reading assigned articles and then led the whole group in discussion about the issues students had brought out. I was more interested in students' talking about what they wondered than what they agreed with and knew. I took notes about who said what, and I focused on what and how they shared their k-12 learning experiences or field experiences to make their points in order to grasp in general each of student's ways of thinking about the topic and her understanding of it. At the end of the semester, I collected students' final paper about their teaching philosophy for which the instructor asked the students to write on their views integrating class topics and their observations and experiences in the field.

My observation continued in the Fall, 2009, keeping contact with my participants. This time, the course that I observed was devoted to classroom management. The course was chosen because students had revealed during the first semester interviews that they were the most concerned about classroom management issues and had high expectations about this class. Unlike my first observation, I attended only three sessions of the class at the instructor's request. In addition to the classroom management class, the instructor taught the students "Elementary reading methods" class during the same semester and

had also worked as the program coordinator of my participants' cohort. The sessions that the instructor allowed me to observe had a special format that was designed by the instructor. The main activity was to have small group discussions about the assigned chapters of the textbook, which she referred to as *Book Club discussions*. Every session, students were divided into three groups, and each group discussed different chapters that were usually not directly dealt with by the instructor and then presented what they had discussed to the whole class. Because these chapters were about different classroom management strategies, students often shared their working experiences with children and actively expressed what they liked or did not like with their rationale. Similar to my first observation, my focus was on what and how they built their own views about classroom management. Students' discussions were all audio-recorded and transcribed. Students' final papers about a personal discipline system were collected at the end of the semester. The papers reflected what kinds of classroom environments they wanted to create and what discipline strategies they would apply to their future pupils when they had their own classroom.

Observation of student teaching. In order to answer my last research question of how preservice teachers' conceptions of teaching were reflected in their student teaching, observing the students' actual teaching was necessary for the study, and more intensive observation was required. In order to familiarize myself with the observation procedure, I carried out preliminary observations of student teaching three times before starting the official observations. With the help of one of my colleagues who had worked as a facilitator in the PDS program, I had the chance of observing three student teachers'

teaching of language art lessons to first and third graders in a different school district and of practicing making field notes. In order to develop an observation rubric, I attended the meetings that she had with each of the student teachers after her observation and also referred to the field notes that she usually used for her observations that were designed by the program. Based on these preliminary experiences and additional reading of the literature, I developed an observation rubric. The observation guide and my first field notes were discussed with my advisor and another one of my colleagues who had experience of observing classrooms and making field notes as part of her dissertation study.

Having prepared myself for observation, I observed three teaching sessions for each participant (in total, 24 teaching sessions). By at least the day before each teaching session, I usually received a participant's lesson plan by email. During the lesson, I also collected teaching materials and worksheets handed out to the children in the class. Right after observing each session or during lunch time, I interviewed the student teacher about her teaching in what I called a *recall interview*. All teaching sessions and recall interviews were audio-recorded. In my observational field notes, I tried to capture my general impressions of my participant's interactions with her students, the flow of teaching, whether or not she followed her lesson plans, and specific incidents during class. Also noted during the classroom observations and interviews were theoretical, methodological, and personal memos (expanded field notes). In addition to expanded observational notes, analytical memos were a very important source because it is very difficult to keep track of so much data without using memos to guide qualitative analysis

and reflect the complex and cumulative thinking involved (Corbin & Strauss, 2008). Thus, I continued to write analytical memos while observing and transcribing classroom discussions throughout the whole process of the study. This helped me to keep a record of my thoughts about my data and also provided useful insights in later analytic sessions.

Interview protocol

In addition to classroom observations, another vital aspect of my data collection involved interviews of participants. Interviews are a common way to obtain data on intellectual processes by use of verbal reports (Shulman & Elstein, 1975). Interview data were used to enrich and confirm my understanding of the cognitive aspects of the participants' teaching and to build a picture of individual students' developmental processes of their conceptions of teaching and teacher identities that were informed by their point of views. My interview technique can be described as semi-structured with open-ended questions. As a non-native speaker, I paid special attention to my choices of words or phrases in the process of developing interview questions, and I consulted two expert researchers including my advisor, two native colleagues, and one bilingual undergraduate student who could speak English and Korean in order to confirm the adequacy of the interview protocol. The prepared interview questions were revised based on early interviews and throughout the study by being added to, modified, or deleted. For instance, I added some additional specific questions to a general question, "how do you feel about your learning experience in the class?" to draw out the richness of the students' answers, such as "what was good or bad with the class?," "what did you learn the most from the class?," or "can you give me an example of a time when you learned something

well?" Prior to conducting each interview, I briefly explained the purpose of doing interviews and the confidentiality of interviews because I believed that the establishment of trust and participants' psychological safety would be important for the quality of data. During the interviews, I did not adhere to the list of questions, but used them as a guide. With my interviewees' permission, I audio-taped the whole interview conversation and these conversations were all transcribed. My interview data can be divided into two types: final interviews and recall interviews. I describe these in detail below.

Final interviews. The interviews that I conducted at the end of each semester were referred to as final interviews. The interview questions were commonly structured in five themes: (1) students' learning experiences of the course, (2) students' internship experiences, (3) students' current conceptions of teaching and changes in those conceptions, (4) students' self-identification in both contexts, and (5) students' confidence about being a teacher. Beyond the common themes, each semester's interview had some distinctive themes. For example, in the first semester interviews, students were asked about their past K-12 learning experiences and the story of deciding upon teaching as their profession, whereas in the third semester interviews, questions about their student teaching and overall learning experiences of the PDS program were added. Additionally, I asked students for their rationale for some of their responses to the questionnaires that were administrated prior to the second and third semesters' interviews.

Before conducting the very first interview in the first semester, I conducted a mock interview with a bilingual undergraduate student who was in a different cohort of the PDS program, in order to familiarize myself with the interview procedure. The final

interviews usually took place in my office and I had 24 sessions, in total, over the three semesters. Final interviews ranged in length from 30 to 80 minutes, with the majority between 45 and 60 minutes long. I followed the first interview with questions to fill in gaps where I had missed questions and to clarify some answers. One of these follow-up interviews was conducted by email, and the other one 20-minute face-to-face interview. Four follow-up interviews were conducted by email in the third semester.

Recall interviews. Recall interviews aimed to give the preservice teachers a chance of immediately reflecting on their own lessons and of verbalizing the intentions behind their teaching actions. Thus, unlike final interviews, recall interviews were necessary only in the third semester and mostly conducted right after each teaching session or at lunch time on the same day because interview timing was important for the quality of data. The questions in Appendix F were designed to explore what the students were concerned about the most during their teaching and their thoughts and feelings about their own teaching strategies and teaching actions made on the spot. Because my intention for doing recall interviews was not to judge whether or not the lesson was effective or successful, but to know the preservice teachers' thoughts or beliefs behind their plans and teaching a lesson, in the first recall interview with each participant, I started with an opening conversational turn as follows:

> Before starting the interview about your lesson, I just want to make sure that you understand I am not a person who is judging the effectiveness of your lesson and trying to teach or give you advice on how to improve your teaching. Maybe that's your facilitator's or coordinator's job. I'd rather like to learn from you about how you came up with this lesson plan, why

> you chose the specific activities or strategies or what you thought during the lesson. So, please feel free to say any concerns about your lesson and whatever my question makes you think about. This interview is confidential and I won't share anything you tell me with anyone.

I hoped that students would feel comfortable with talking about their own teaching and would take this interview as an informal conversation. The interviews usually took place at a desk in the hallway around the corner from the classroom or in the library where we could be somewhat private and away from their students and cooperating teachers. The interviews lasted approximately 8 to 30 minutes. The majority of interviews were between 10 and 20 minutes long. I did not take field notes during the interviews, but from the recorded interview data, I made a rough draft of a transcript on the same day or at latest, before the next teaching and interview session.

Researcher Stance

My roles in this study changed over the three semesters of data collection. I acted more as a participant observer in the classroom of observation during the first semester, whereas I was simply an observer in the second semester. Before being positioned as a researcher, I first met my participants as a teaching assistant (TA), and accordingly, my presence at every class meeting for the whole semester was considered as a natural task of a TA by my participants. The instructor also helped me to make connections with them by telling the students that I had some teaching experience in elementary schools in Korea and sometimes invited me to share my ideas with the whole class about the topics from a different cultural point of view. By contrast, I only attended three class sessions in

the second semester because the instructor wanted me to keep some degree of distance from the cohort, thereby positioning me more as an outside observer. This did not mean that the instructor was not supportive of or lacked understanding about my study. She explained her stance as a coordinator of the cohort, not simply as an instructor, that made her feel more responsibility for protecting the students' confidentiality. Even so, her actions did not seem to influence my relationship with the students. Because I had already built enough familiarity and trust with them through the previous semester's interactions, they were always friendly to me and greatly cooperated with me on data collection procedures.

The prolonged engagement with the students continued into the third semester, and I was able to develop even more personal relationships with each participant through individual observations of their student teaching and frequent interview meetings. Before interviewing them about their teaching of lessons, I made sure to differentiate my role from their coordinator's or facilitator's who observed their lessons as well. Rather than as an evaluator or helper with the purpose of improving their teaching, I hoped to be more like somebody with whom they wanted to chat after a lesson and to share informally their self-reflection on the lesson. The role might be described as a *friendly listener*, and I seemed quite successful in terms of sustaining the role. Students always showed their willingness of sharing their thoughts openly and often times expressed their enjoyment of talking with me at the end of every interview session. One of the participants who actually asked me to write a recommendation letter later when she applied for a teaching

job, even showed me appreciation and stated that I had helped her become more self-reflective about her teaching and gather her scattered ideas about what to do next time.

Data Analysis

My data analysis was ongoing and occurred simultaneously with data collection by making extensive memos and field notes through consistent reflections on the data and attention to what the data were saying. Because I collected a substantial amount of qualitative data over three semesters, data organization and transcription decisions were a very important step to make decisions about further analysis, which I called *phase 1* of data analysis. Then, more intensive and focused data analysis progressed in the next three phases. In Phase 2, I focused on identifying emergent categories related to the nature and characteristics of developing conceptions of teaching and teacher identities, adopting a grounded theory approach (Corbin & Strauss, 2008). The Phase 2 analysis informed all my research questions and guided the next phases. Both Phases 3 and 4 were closely related to addressing the fourth and fifth research questions, respectively. I describe more fully each analysis phase in the sections below.

Phase 1: Data Organization, Transcription, and Preparation

For data organization, I first created a database of all data sources on my laptop, using the Microsoft Excel program. The primary task I faced after each observation was to download the recorded files and label them with the name of the participant and the date of recording. All data files were arranged in distinguished subfolders named by the type of data under each semester folder. Once the recorded files were arranged on my laptop, I tried to complete my field notes and memos as much as I could, listening to the

file again while my memory was still fresh on the same day of collecting it. In addition to expanded observational notes, analytical memos were also important source. Not only in the analytic process but also while doing class observations and transcribing interview data, I kept writing analytical memos in order to track my thinking about my data throughout the study.

Based on my best insight as a researcher about the potential importance of data for the study, transcription occurred in several ways, such as early transcribing, selective transcribing, full or partial transcribing throughout data collection. All final interview data were fully transcribed, and accordingly, I began making a rough transcript of each final interview soon after it was collected. However, making the full transcription of all the final interview data was a long and arduous task that was continued over four semesters (2009 Spring ~ 2010 Fall). Regarding the recall interview data, I made early transcriptions of all participants' interviews during the same semester of collecting them, but only three focal students' interview data were fully transcribed, after I had decided the best way of representing results and selecting focal students during the winter, 2010. Transcription decisions for class observation data were guided by my expanded observational field notes and analytic memos, and specific parts of teaching session were selectively transcribed. I used the Express Scribe program for data transcription. With respect to the Book Club discussion data collected in the Fall, 2010, I hired a native speaker of English to transcribe them in order to increase accuracy of transcribing multiple and simultaneous voices occurring during the discussions.

Table 7. Data Analysis Plan by Research Questions

Research Questions	Main Data Sources	Method of Analysis
1. How do preservice teachers' conceptions of teaching grow and change across the three semesters of their teacher preparation program?	▪ Transcripts of final interviews ▪ Final papers	▪ Descriptive coding ▪ Content analysis of artifacts
2. How are preservice teachers' epistemological beliefs related to preservice teachers' conceptual change?	▪ Responses on EB measures	▪ Descriptive statistic ▪ Cross-case comparisons
3. How do preservice teachers' teacher identities evolve over time?	▪ Transcripts of final interviews ▪ Final papers	▪ Descriptive coding ▪ Content analysis of artifacts
4. What is the relationship between preservice teachers' conceptual change and formation of their teacher identities?	▪ Transcripts of final interviews ▪ Final papers	▪ Within-case analysis ▪ Cross-case comparisons
5. How are preservice teachers' beliefs about knowledge and teaching reflected in their student teaching?	▪ Transcripts of recall interviews ▪ Transcripts of student teaching ▪ Observation field notes	▪ Within-case analysis ▪ Cross-case comparisons

Beyond transcription decision, data preparation decisions were crucial in Phase 1. In order to answer my research questions, what kinds of data were specifically needed and how those data should be analyzed were informed by systematically monitoring all data and iteratively reviewing my field notes and analytic memos. For example, the transcripts of Book Club discussions were used beneficially to prepare for final interview questions and to validate the interview data, along with my field notes, but they were

excluded in my analytic session for this study because I deemed that the analysis of language itself that the students used when they collaborated with their groups would be part of another study. The actual data analysis plan was produced through making data preparation decisions, which was another important product of Phase 1. I summarize my data analysis plan by research questions in Table 7.

Phase 2: Developing Coding Scheme

General data coding procedures were followed according to Corbin and Strauss's (2008) qualitative data analysis methods. Throughout the second phase of data analysis, bearing in mind the importance of deriving themes that emerged from the data without imposing a pre-established coding scheme, I simply began by reading the transcripts of final interviews, for the overall process of data analysis. Reading repeatedly through the transcripts, I highlighted all sections relevant to my research questions. Meaningful parts of the data were extracted and broken down into smaller chunks, such as "K-12 learning experience," "Prior conceptions of teaching," Change of conceptions," "Internship experience," and so on. Depending on the focus of a research question, I reviewed the transcripts of final interviews in several ways, such as down reading and across reading. Down reading (i.e., reading all of one semester's interview transcripts across participants) helped me to find some characteristics of each semester's experiences and how they contributed to students' conceptual changes, whereas across reading (i.e., reading each participants' interview transcripts across the three semesters) informed me of individual characteristics of learning experiences and different patterns of conceptual changes.

My specific coding strategies included *open coding* and *axial coding*. In the process of open coding, I closely examined the similarity and differences of the extracted units of meaning. Similar units of meaning were grouped together to identify properties and dimensions specific to a particular concept or theme. The data were further elaborated through a process of *axial coding.* Each dimension created from open coding was constantly compared and contrasted to find similarities and differences to other dimensions to search for relations among them. The relationship among categories identified through the iterative process of reassembling data provided a complete explanation about phenomena and answered research questions. For example, under the unit of change of conceptions, six categories emerged: (1) recognized/realized, (2) reinforced, (3) new information added, (4) elaborated in depth, (5) tuned, and (6) transformed (see Table 12). Through careful examination of relationships among categories, the six categories represented nature of changes. Thus, the categories and relationships were combined to explain what process preservice teachers experienced in developing their conceptions of teaching during their teacher education programs.

These coding processes yielded four final coding schemes, including the one about the nature of changes that I addressed above. For origins of preconceptions of teaching, five categories were identified (see Table 8), and I found that students addressed their conceptions of teaching in terms of five different dimensions: (1) good teaching, (2) teachers' authority, (3) students' learning, (4) classroom environment, and (5) teaching as a profession (see Table 10). These dimensions were confirmed when I coded students' final papers about their teaching philosophy. In addition, another documentary

source, students' final papers about their individual discipline system, were also used to differentiate between the two dimensions of teachers' authority and classroom environment. The coding scheme for self-identification issues consisted of two single identity codes, *student only identity*, and *teacher only identity*, and three dual identities, *equal student and teacher identities*, *student-dominated identity*, and *teacher-dominated identity*. These identity codes were supported by my field notes of the Book Club discussions.

Phase 3: Exploring the Relationship between Conceptual Change and Formation of Teacher Identity

In the third phase of data analysis, I hoped to gain insight into what characteristics appear in students' conceptual change and in the process of evolving their teacher identities, and how these characteristics were related each other. Attempting to find discernable patterns in terms of two aspects of teacher development, I thoroughly examined each case, which led me to postulate how each student built her conceptions of teaching and recognized herself as a teacher, and experienced changes or evolution in these conceptions and self-images (within-case analysis). Then, I compared and contrasted across cases to integrate categories and find the relationship between the two developmental aspects, rereading all memos and field notes. One strategy that I used for this step of *integration* was to make a large chart that included all case analyses. Thinking deeply how all the categories might fit together and be related to each other, I tried to find cues from the data per se and to create a story line. In addition to individual case analysis charts, the integrated analysis chart was very helpful in arranging ideas and make connections among cases. This phase of analysis required me continuously to compare

across sources and analysis techniques until I felt the analytic story fit well, and all categories were logically well linked, with emerging reasonable explanations and interpretation about the relationship between conception of teaching and teacher identity.

Phase 4: Exploring the Relationship between Beliefs and Actions

The fourth phase of data analysis was focused on exploring how preservice teachers' beliefs about knowledge and teaching influenced their teaching plans and actions. Although my study involved all students in the cohort, I selected three focal students for this phase of analysis. Especially, the Phase 4 analysis addressed my second and fifth research questions. Thus, I tried to have variation in selecting the three cases in terms of students' epistemological beliefs and characteristics in the developmental process of their conceptions of teaching, hoping that I could find some variation in the nature of the relationship between beliefs and action. Of the two EB measures I used in the study, students' responses to Epistemological World View Survey were considered because students' scores on the other measure, EBI, did not show much variance. Regarding idiosyncrasies of their beliefs progression, students' prior conceptions of teaching and the speed of conceptual changes were important in my choice of cases and in my description of each case. I will describe in detail profiles of the focal students in the results chapter. The analysis technique of cross-case comparison was required for this phase, and I went through the integrating and iterative process much like the one I had used in the previous phase of data analysis. In addition, one noticeable thing in the analysis of Phase 4 was that the observation data of student teaching were consulted frequently to clarify and confirm what participants had said in the interviews about their

actual teaching, although students' verbal reports played a primary role throughout the analytical process.

Establishing Trustworthiness of the Study

Lincoln and Guba (1985) addressed four trustworthiness criteria and suggested several techniques in order to establish the interpretation of the data as trustworthy: *credibility*, *transferability*, *dependabiliy*, and *confirmability*. In particular, of their techniques for *credibility*, the trustworthiness of my study was strongly supported by two techniques*: prolonged engagement* and *triangulation.* First, *prolonged engagement* is the investment of sufficient time to appreciate contexts fully, build trust, and identity misinformation between the researcher and participants. I actually met my participants in the Spring of 2009 as a TA for the class as I observed them throughout their first semester of the PDS program. Prolonged engagement was attained by having those relationships from the beginning of starting the research in the Spring, 2009, observing their discussion activities three times in the Fall, 2009, and continuing to interact and interview the participants over the three semesters. I know my participants well, and I believe adequate trust and rapport was established.

Triangulation refers to the use of multiple and different data sources, methods, investigators, and theories. In my study, through using different methods such as interviewing, audio-taping, observing, taking memos, and using other documents (e.g., final papers and lesson plans), triangulation was fully addressed. Other issues pertaining to trustworthiness were also addressed. *Transferability* was met by providing thick descriptions and enough information about participants and the research context so that

readers can generalize their interpretation and transfer to other settings. *Dependability* was addressed in triangulation through using overlapped method. My study established *confirmability* by constructing an audit trail. Finally, *peer debriefing* was attained throughout analysis by presenting preliminary data or tentative results of the study and having expert peers or colleagues help me in validating the categories and my interpretation.

CHAPTER 4

RESULTS

Analysis of the data revealed that preservice teachers experienced conceptual changes in their conceptions of teaching toward the direction aligned with their teacher education program, appearing as individualized developmental patterns in terms of nature and speed of change. The data also revealed that their teacher identities did not appear to evolve separately from the progression of their conceptions of teaching. Two different processes of development seemed to go along in the long journey of becoming a teacher sharing some characteristics and influencing each other. Although preservice teachers' knowledge and beliefs about teaching were not always fully reflected in their actual teaching, they were crucial in making lesson plans in advance and making some decisions on the spot. In this chapter, I describe my findings in four parts in order to answer my research questions.

Given its importance, I have included two parts to present findings related to belief development, Part 1 and Part 2. In Part 1, I discuss only what preservice teachers had believed or thought about teaching and learning before entering the teacher education program and where these preconceptions came from based on what they said during the first interviews as well as how they clarified their responses when asked on subsequent interviews. In Part 2, I describe belief development throughout the PDS program. Part 2 is organized into four subsections: what was changed, how students were different in their development, what made the changes, and the relationship between conceptual change and epistemological beliefs. Then, in Part 3, I present how my participants'

teacher identities evolved throughout the program, organized in four subsections: prior image of self-as-a-teacher, self-identification in different contexts, self-confidence of becoming a new teacher, and dynamics of growing teacher identity. Following that, in Part 4, I finally discuss the relationship between preservice teachers' beliefs about knowledge and teaching and their actual teaching based on the results of cross-case analysis of three focal students.

Part 1. Preconceptions of Teaching before Entering the PDS program

There seems to be no argument that preservice teachers bring some preconceptions of teaching into their teacher education program, but the research about what preconceptions they actually hold and where these initial conceptions come from is still sparse. However, it seems reasonable that knowing precisely about preservice teachers' prior conceptions would play an important role in investigating the development of their conceptions of teaching as a starting point, and it could act as a barometer of the degree of sophistication of their conceptual change. In this part, I discuss these preservice teachers' entering preconceptions in four sections. I first provide four categories regarding the *content of preconceptions of teaching,* and then take up the first two of these categories in more detail in the following sections, *view of teaching* and *locus of attention.* Lastly, I present where those preconceptions came from.

Content of Preconceptions of Teaching

Aligned with previous research, all preservice teachers in this study began their PDS program with some preconceptions of teaching. The content of their preconceptions included *Ways teachers teach*, *Ways students learn*, *Teachers' qualities,* and *Difficulty of*

the teaching job itself. Their initial conceptions of teaching were generally simplistic and immature, in that most of them confined their answers to one or two categories of content without pedagogical rationale. Some preservice teachers tried to address the rationale for their ideas, but it was often related to their memories about their own past learning experiences as students rather than based on an integrated understanding about complexity of teaching. For example, Heather said: "*I think before the semester, I thought that students were a lot more disciplined in the classroom. I thought, I remember being more structured and more structured learning, like, a teacher teaches and you do the assignment, and then you work together to make it better."* Jackie also referred to a favorite class experience she had had when she was in the third grade as her rationale for her idea of teaching. She said that teaching students to think something from various perspectives is important and reflected that her teacher had taught her Texas history not only from Texas people's perspectives but also from Mexican people's.

Of the four content categories, teachers' qualities were most often addressed and four of eight preservice teachers readily generated some affective characteristics such as caring, supporting, warming, welcoming, genuine, patient, or passionate. Regarding preservice teachers' views about the difficulty of the teaching job itself, two contrary preconceptions appeared. Whereas Sally admitted that she thought teaching would be very hard because teachers need to know everything about every subject, some other preservice teachers reported having thought that teaching is just being around kids and having fun with them. Interestingly, both preconceptions were modified into a more balanced direction during the first semester of the PDS program. The other two categories

of content, ways teachers teach and ways students learn, are closely related to preservice teachers' views of what teaching is, as I continue to discuss in the next two sections.

Views of Teaching

From what they said about how teachers teach and how students learn, two different views of teaching emerged: *a constructivist view of teaching and a transmission view of teaching*. The constructivist view of teaching represented that teaching involves guiding students exploration in their own and creating their own knowledge whereas the transmission view of teaching assumed that knowledge is acquired through experts and defined teaching as telling information and lecturing organized knowledge to students. The data revealed that half of the preservice teachers had constructivist views of teaching before entering the PDS program. Madison's comments were revealing:

> *I think being guided and still learning is more important than saying "This is the information" because they experience it themselves and they gain information through their inquiries. And I think that's way more meaningful than being "Here is a book on rabbits. Go read it." Instead of saying that, you have to guide them into rabbits and have them do the projects on what they choose to do, that interests them instead of telling them "You have to do this."*

Her prior view of teaching was very aligned with the program's philosophy of teaching and another three students also expressed similar ideas about teaching, though the degree of sophistication in articulating their conception varied.

By contrast, the other four students seemed to have transmission views of teaching upon beginning the program. Heather's comments as previously quoted indicate that teaching, to her, meant assigning activities to teach structured knowledge. Maxine even named the two different perspectives of teaching in the first interview and clearly mentioned what she thought about teaching before starting the PDS program: "*I thought, you just make lessons and you do it and don't worry about how kids behave. Now I just realize it is important not only just planned, just, it wasn't student-centered and definitely teacher-oriented before."* She had probably learned the terms *student-centered* or *teacher-oriented* in her classes as part of the PDS program, and what she meant by *teacher-oriented* view was considered similar to a transmission view of teaching. The other two students who saw lecturing the assigned curriculum as a teacher's main job were also identified as having transmission views of teaching.

Locus of Attention

Another important characteristic of these preservice teachers' conceptions of teaching is that the development of the conceptions moved from an inward focus to an outward direction. Previous researchers have claimed that novice teachers' attention turns from a focus on the self as a teacher to instruction design and teaching performance to pupils' needs and learning (Fuller & Bown, 1975; Kagan, 1992). The locus of attention is closely related to what was the main concern of these preservice teachers when characterizing good teaching or an effective teacher. The majority of preservice teachers in this study had a teacher-centered focus of attention and only two students seemed to

have student-centered attention before entering the PDS program. I draw this conclusion from an interpretation of their initial interviews and then confirmed by later interviews.

It was not surprising that all students who had a transmission view of teaching were seen to have teacher-centered attention. However, contrary to my expectations, two of four students who had a constructivist view of teaching also expressed their focus of attention that seemed teacher-centered. With respect to this dissonance, I cautiously postulate that students who mainly attributed their constructivist views of teaching to their own good learning experiences as a student or their good memories of their favorite teachers' teaching styles might be more likely to have teacher-centered attention. By contrast, the two students who had a constructivist view of teaching and also student-centered attention had had significant working experiences with children, and these experiences not only contributed to build their entering views of teaching but also influenced them to choosing teaching as their profession. I will go into more detail about this point in the next section.

So far, I have discussed what conceptions of teaching preservice teachers brought into their teacher education program. Besides what preservice teachers think teaching is (their views of teaching), the locus of their attention was also discussed as an important part of their conceptions of teaching. What I mean by *conception of teaching* here represents not only preservice teachers' general pedagogical knowledge and beliefs about teaching and learning but also their vision about what will happen in their future classroom. Therefore, when I talk about developmental changes in their conceptions of teaching in Part 2, I will continue to use the two dimensions, views of teaching and locus

of attention. However, before moving on to Part 2, I discuss where preservice teachers' preconceptions of teaching came from.

Origin of Preconceptions of Teaching

Preconceptions about teaching seemed grounded in a wide variety of historical sources (see Table 8). Of students' various K-12 experiences, what and how they had been taught in their favorite classes represented the subcategory most often mentioned as influencing their preconceptions of teaching.

Table 8. Origins of Preconceptions of Teaching

Category	Subcategories/Examples
1. K-12 experience as a student	General feelings about schooling, favorite classes and teachers. student type, school environment, relationships with teachers and friends, academic performance, extracurricular activities
2. Previous professional experience	Teaching (e.g., swim class), tutoring, after-school aide
3. Previous non-professional experience	Babysitting, volunteering in mom's class, observing other teachers
4. Previous educational experience	Taking courses, reading books/articles
5. General social interaction	Talking to others, learning to interact with people

Five students reflected that they had enjoyed doing projects and many hands-on activities in elementary schools, and three of them connected their positive learning experiences to their constructivist views of teaching. Not all students had enjoyable memories about their schooling and their past teachers. Three preservice teachers reflected their negative learning experiences (e.g., hated to take tests in public school, bored with sitting all day long and doing assignments, had to show excellence to be the teacher's favorite, etc.).

Two of these had a transmission view of teaching. Thus, positive learning experiences as a student seemed associated with having a constructivist view of teaching rather than a transmission view of teaching.

The result that preservice teachers' prior views of teaching were closely related to their own experience as learners was aligned with Hollingsworth's work (1988, 1989). Hollingsworth suggested novice teachers' self-image as a teacher may be strongly influenced by their self-image as a learner. Madison reflected this association in her interview:

> *I think a lot of the ways I think about teaching have come from my experiences as a child and the teachers I liked and what how I learned the best and having projects. Where they're open-ended, where we can have interests in them, I learned so much more than somebody giving me a lecture. And I think that's the teacher guiding you to do what they want you to know instead of telling you what you should know. …SO I think a lot of my experiences as a teacher are from my experiences as a learner growing up, and I didn't tell you this earlier, but I really want to teach in a school where the classes, they don't stay there all day, because that's what I did growing up, and I don't know what I would do if I had a class all day that had to teach all the subjects, because I've never experienced that, so that's really scary to me.*

Another important factor in constructing preservice teachers' preconceptions of teaching was their own prior working experience with children. Most of these preservice

teachers had had previous working experience for at least more than one semester before entering the PDS program. For example, Jane had had several varied experiences as a tutor or after school counselor, and she mentioned that her experience with kids had influenced her preconceptions of teaching. Jane said that she never had enjoyed going to school, but she really loved one class called “Intro to teaching methods” that she took in high school. She enjoyed spending some time with elementary students as one of the class activities, and the enjoyable experience made her keep going and working with children after graduating from high school. Finally, she saw herself really working with kids and decided to be a teacher as her career. Her working experiences with kids led her to have a constructivist view of teaching before entering the PDS program, with a student-centered focus of attention.

Similarly, Heather’s prior views of teaching were more influenced by her working experience as a volunteer in a kindergarten class rather than by her own learning experience as a student. She often helped in her mother’s kindergarten class during summer times from the time she was a high school student. Her mother controlled her students very strictly, and Heather described her mother’s class as being like a “little Nazi camp.” Through observing and helping her mother’s class, the idea that structured teaching might be a little strict, but also effective was implanted in her mind. Although Heather reflected on how she enjoyed many fun projects or hands-on activities when she was an elementary school student, her prior conceptions of teaching were more influenced by her mother’s teaching style, and she had a transmission view of teaching. Thus, besides preservice teachers’ K-12 learning experiences, their previous working

experiences with children had an impact on what they thought about teaching and learning before entering their teacher education programs.

Part 2. Development of Conceptions of Teaching during the PDS program

In the previous part, I discussed preservice teachers' conceptions of teaching that they brought into their teacher education program. In Part 2, I discuss how these preconceptions developed and changed over the three semesters of the program, organized into three subparts: *what was changed?*, *how were students different in their development?*, and *what made the changes?*. Regarding what was changed, I divided again into four subsections; I first discuss the changes that occurred in the two aspects, *view of teaching* and *locus of attention,* that were introduced in Part 1, and then include a consideration of changes in *distinctiveness* and preservice teachers' *expectations about the first year of teaching*. Then, I present how their conceptual changes were similar and also different in terms of nature and speed of changes, and then, describe what contributed to those changes, focusing on the effect of the teacher education program. The last subpart that I have included in Part 2 is about the relationship between preservice teachers' epistemological beliefs and their conceptual changes.

What Was Changed?

Views of teaching. All preservice teachers in this study came to profess constructivist views of teaching as the three semesters progressed, and this change was compatible with their teacher education program's philosophical emphasis on constructivism or student-centered teaching. Although I did not directly ask them if they knew what constructivism was, some of my participants reported that they had never

heard about constructivism before and felt unsure of their understanding in the first interview conducted at the end of the first semester of the PDS program. However, given the survey questions about what they thought the program's philosophy or views about teaching might be that I conducted at the end of the second semester, all of them reported that they recognized that it would be student-centered or very student-centered. During the second semester interview, Sally mentioned the gap between what she had learned at the university and what she was seeing at the school where she was placed, and she expressed setting much value on the ways that the program taught her:

> *We also see that teachers are one-sided. There are definitely differences between what we are learning and what we are seeing. ….I mean I am not saying that those kids are not learning and teachers can do it differently, but definitely, I do feel like the way of we are learning at UT seems to be more efficient and more effective. I feel like what we've been learning works better.*

In fact, Sally was one of four students who had had a transmission view of teaching before entering the PDS program. Throughout the program, she professed agreement with the constructivist view of teaching, which was a big conceptual change for her. The other three students also experienced similar changes from a transmission view to a constructivist view of teaching, although the speed or degree of change was somewhat different for each (discussed in the second section). For students who already had constructivist views of teaching before starting their program, their conceptual change was less dramatic, but in terms of sophistication of articulating what they believed

about teaching, their changes were very notable and significant. Two comments made by Jane at different time points illustrate these differences:

> *Before the semester…let's see…I mean just..obviously, I have to care about kids. You have to realize they learn from everything. You have to be aware of it and have to be a positive model for them…You don't know what would be their home lives..so, you try to understand that..Um..I mean they just have to learn as an individual student with a teacher teaching kids individually.* (April. 9th. 2009)
>
> *Instead of getting up there and saying, like, ' this is what we are gonna learn', tell them what it is and let them explore it and figure out what they need to know about it, and then maybe in the activities, they are just, you know, kinda exploring it on their own, and you giving them the tool or pack of information and making them to do research, like you are studying about. I don't know, last semester I had to teach about native Americans. I wasn't up there and teaching native Americans. Each group had to try to find information that they got through, like, researching and finding and presenting the information.....* (November, 20th. 2009)

Thus, the participants in this study experienced conceptual change about teaching throughout the program. This result seems to contrast with many researchers' claims that the personal beliefs and images that perservice teachers bring to their teacher education program usually remain fixed. Heather's self-report about how easy it was to be flexible, to make the change, is worth mentioning here:

I think some teachers especially, they have tried to be one way for a long time and then probably, it's hard to change.…..but, I quickly learned that it's better to be flexible because I didn't have any experience..I felt like if I had a lot of, specifically, teaching experience of doing one way, it would be hard to change. Because I was kinda like an open book, whatever I observed and who is gonna be what I adopted. I think it's easy for me to be, like, oh, being strict doesn't work and this works.

In fact, Heather's flexibility or adaptability led her to be a very active and aggressive learner throughout the program, and she experienced the greatest degree in changing her conceptions of teaching each semester. Overall, my participants did not seem simply to hold on to prior beliefs about teaching; instead, they tried to keep validating what they were learned at the university, at the same time recalling how they had learned as a student. Then, their past learning experience and their current learning-to- teach experience were merged into their current conceptions of teaching, what/how they wanted to teach in the future.

Locus of attention. The majority of my participants had reported a teacher-centered attention before the first semester, but as semesters passed, their knowledge and understanding about students increased, and all of them came to profess student-centered attention by the end of the third semester. Although I had assigned two participants to the student-centered attention groups before starting the PDS program, even their knowledge or understanding about students was still fairly superficial at the beginning of the program: "*Students are all different and they learn differently*" or "*Lessons should be*

adaptive to different leveled students." However, preservice teachers' growth in their knowledge and understanding about students become apparent during the subsequent interviews, when they described a critical incident they experienced in the placement schools or when they characterized what good teaching would be and how they wanted to teach. Their value for knowing students and making a connection with them as a foundation for good teaching increased, and they placed more importance on explaining how *my students* learn, what *my students* want to learn, or why *they* behave so, rather than what *I* need to do as a teacher or what *teachers* should do. I categorized preservice teachers' knowledge or understanding about students into three aspects, *the nature of students, ways of learning*, and *prior knowledge of students* and summarized what participants said about each category in Table 9. The examples of each category show how specifically and deeply preservice teachers understood their students for these various aspects of their understanding of students.

Table 9. Examples of What Preservice Teachers Know about Students

Aspects	From interview transcripts
Nature of students	▪ Children are always changing. Like, children today are not acting like when I was little..So, you never stop learning and should realize that there is always something new you have to learn…(Jackie) ▪ Some students just do better in school than others, like some students are going to listen to their teacher all the time, and some aren't…(Jane) ▪ My emotion and my behaviors in the classroom impact students. I felt like bored, stressful or upset, then students mimicked exactly those feelings..(Maxine) ▪ I don't think that I'm ever gonna take away recess from a child because they need recess, otherwise they're gonna be crazy….I think they need a time for socializing and being active and running around..(Sally)

Table 9 (Examples of What Preservice Teachers Know about Students), con.

Aspects	From interview transcripts
Nature of students	▪ I've learned a lot as a teacher, you have to find what works for your students and not every discipline system work for every student, but also I learned there are stressful children in your classroom, and so, as a teacher, you need to learn how to be able to handle that. (Michelle) ▪ I think for kinder and first graders, it's really important for them to be able to work with and cooperate with other kids because at home, they were just me and it's my world. Having them to understand different points of view and not to be ego-centralized and learning how to use different point of views and so, I definitely try to do group work. (Paula) ▪ They knew moving, maybe they need to stand up when you were writing…maybe, like, they can only focus on ten minutes of the whole time. And I've learned that is more important to allow students to figure out how they are learning..(Heather) ▪ I don't think the kids are premeditating in their actions…I think just, like, they don't know how to deal with their emotions..You have to teach them how to deal with their emotions and they don't lash out in a negative way..(Heather) ▪ I guess it helped me to think that I need to be more careful about what I say to students because they are more sensitive than others. (Heather)
Ways of learning	▪ If kids aren't safe and they don't feel cared for, they're not going to open themselves to learning. (Madison) ▪ They understand it and then they can internalize that and use it. (Madison) ▪ I feel like, for a lot of things, especially, in math, you should let them find a way and let them see the processes….because you can explain something before they actually do it and get it, but they are not gonna learn…they can act like, they did it and got their answers, but they don't know why they did it…(Madison) ▪ Students learn a lot from each other, more than from me or teachers. (Jackie) ▪ A lot of stuff for younger graders, they are not directly taught, and they are kinda doing and learning through centers. (Jane) ▪ It makes sense why these kids can't think more broadly because they are doing, like, the very basic stuff. Like, a teacher asks questions, and they give an answer type…(Jane)

Table 9 (Examples of What Preservice Teachers Know about Students), con.

Aspects	From interview transcripts
Ways of learning	▪ I feel like they really do learn the best by doing…..when they find it themselves, they can remember the process that they used to find it. Even if they don't remember the actual information that you want them to learn, I think it's more important, like, learning the process to find the information rather than the actual information. (Jane) ▪ They are scaffolding each other and experiencing something in a different way when they have a place with peers..(Michelle) ▪ I guess I learned a lot about helping students to take responsibility for their actions and their learning because they have to be responsible for their knowledge as well, and they don't understand that and then, they don't need to go to practice…They should be starting to learn for themselves what they need to learn because otherwise, if there is not a teacher, they're not gonna try. (Heather)
Prior knowledge of students	▪ To me, it makes perfect sense,…they don't have a lot of basic knowledge they need to have as fifth graders, and so they cannot understand what I explain…(Madison) ▪ I want to make sure to ask questions when starting a lesson. That way allows me to know what they know because they are not all in the same place, and they are not all gonna have the same experiences. (Michelle)

Many preservice teachers were aware of their own growth in knowledge about students and reported that it was mostly caused by spending more time in the placement schools and working more with children, because of the increased time of internship in their second and third semesters. Maxine's reflection on her own teaching clearly showed her shift of attention from herself to students:

> *I am really, really teach for them, nobody else, but for them, not for me. I got a problem. I know the first time I was observed this semester, my CT was absent and it's the first time to do it by myself with old kids. I was*

being observed and also videotaping myself. So, the whole time, I was worried about how I looked and what I was gonna say was understandable, I wasn't really think about my kids' learning and enjoying this. I tried to stick to what I remember like oh, what I wanna say, I have everything now. I just really learned to be flexible.

Her shift of attention was aligned with Kagan's (1992) emergent model of professional development and Fuller's (1969) model of teachers' concern. Both models indicated that novice teachers start with much concern or vague apprehensions about self as a teacher, and turned to eventually attention on the pupils' social, academic, and emotional needs and how they related to pupils as individuals. Many preservice teachers seemed to be more concerned about themselves as a teacher, "what" I know and "what" I do, but with realizing the importance of "how" I should teach, their attention naturally moved toward a focus on students with whom they were working as an intern-teacher. As preservice teachers' knowledge or understanding about students expanded, they came to use it as their rationale for their views of teaching and how they wanted to teach.

In addition to their amplified knowledge of students, the realization of other contexts, beyond themselves as a teacher and their students, led them to begin to understand the complexity of teaching, and accordingly, their attention about teaching was tuned to a more sophisticated direction. In the third semester interviews after their student-teaching, I asked my participants what were their basic concerns during their teaching of lessons. The responses of six preservice teachers showed clearly their attention focus: they were concerned about keeping students engaged or about students

being excited about learning, making sure whether they were or were not learning by controlling students' behavior issues, whether students understood what they were saying, or what students already knew about the topic. On the other hand, the responses from Jackie and Jane were interesting because in a sense, though still student-centered, the locus of their attention included another aspect to be considered. Jackie said, *"I want to show I'm meeting my own assessment and also meeting outside goals."* Among my participant, she was the one who worked with students involved in TAKS for the longest time (she stayed with fourth graders for two semesters) and seemed finally to find her own balance of how to deal with the TAKS test issue (with the help of good modeling from her cooperating teacher), even though sometimes, she expressed her frustration with the district mandatory requirements.

By contrast, Jane who also worked with students in a TAKS grade (3rd grade) during her student teaching seemed to be "stuck" in the reality of TAKS presence at her school. Jane had to keep changing her lesson plans because of TAKS tests. Unlike Jackie, Jane received relatively little help from her cooperating teacher because her CT was a first-year teacher who had never taught in a TAKS grade before, although Jane reflected that her CT was very helpful and successful in other aspects. Jane's comments about her basic concerns about her teaching revealed how she struggled with the situation:

> *I think I was just stressed out and like, 'Oh, it's so much to do and so much to plan and there's not enough time.' And also, maybe, like, I felt what I was doing wasn't really what was the best, like, the best way for students to learn, like, it's not all what we've learned about in the UT classes..like, how the students learn best working in groups and all of this*

stuff…like, what I was doing in the classroom didn't always reflect that, but….it was kind of all that I can do right now.

However, Jane's attention focus was still on how students learn the best, and she seemed very reflective about what she had been learning in her university classes, what she was required to do in the placement school, and what she wanted to do but could not do, in her actual teaching.

Distinctiveness. Whereas what I have discussed so far, regarding what changed throughout the teacher education program, is a matter of approach or direction in considering teaching, the focus of this section is on the content and quality of preservice teachers' articulation about teaching. In order to detect more subtle elaboration or refinement of their entering ideas about teaching, I divided preservice teachers' views of teaching into five subtypes of conceptions: *(1) conceptions about good teaching, (2) conceptions about teachers' authority, (3) conceptions about students' learning, (4) conceptions about the classroom environment, and (5) conceptions about teaching as profession*. I summarize what they commonly mentioned for each category in Table 10.

As their language stated to reflect the coursework they were taking, preservice teachers' articulation about their ideas became more sophisticated. Also, they became more concrete, taking their own working experience with students and their teaching experience as examples. As for conceptions about good teaching, they focused at first on certain teachers' qualities, but later on, they emphasized more various teacher roles, using pedagogical knowledge about how to teach. From the comparison between Jane's two comments illustrated in the first subsection (see the page, 11), the elaboration of her ideas about good teaching was detected. In the second semester interview, she separately

explained a teacher's role and students' roles in a lesson and supported her idea, adding her actual teaching experience about Native Americans. Similarly, regarding students' learning, their general and vague beliefs such as "students are all different" became more specified and elaborated by adding the benefits of learning on their own.

Table 10. What They Addressed Regarding Conceptions of Teaching on Five Dimensions

Conception of	Common descriptions
1. Good teaching	▪ Guide, facilitate, help students discover, explore their own knowledge ▪Interactive and individualized teaching; consider/connect students' different background, culture, ability level, interest, and academic needs. ▪Keep students engaged, excited, feel successful about their learning ▪Hands-on activity, group work, modeling, and scaffolding needed. ▪Teachers should be energetic, passionate, flexible, reflective, sensitive, genuine, and care about students.
2. Teachers' authority	▪ Have control of students' behaviors ▪ Model how to control/manage themselves to students. ▪ Share ownership with students; get students involved in setting rules. ▪ Should not be the absolute and ultimate authority of knowledge. ▪ More about connecting to students and building relationship.
3. Students' learning	▪ All different; figure out themselves and have choices ▪ Take responsibility for their actions and learning ▪ Learn from each other through group work ▪ Learn by doing, problem solving, and discovering ▪ Meaningful learning; connect materials to their lives and apply it to different situations.
4. Classroom environment	▪ Learning community for a teacher, students, and parents ▪ Fun, safe, warm, comfortable, and supportive environment ▪ Positive relationship with a teacher and peers ▪ Positive behavior-supported discipline system
5. Teaching as a profession	▪ Lots of effort and time consuming ▪ Need to keep reflecting, learning, and changing ▪ Not easy and fun job with kids; getting hard, can be stressful ▪ Need to have responsibility for students' lives (feel pressure)

Starting to notice some gaps between what they were learning in their university courses and what they were observing in the placement schools and also, applying some strategies or tools into practice, preservice teachers developed clearer conceptions of the classroom environment and of issues about a teacher's authority. Their articulation reflected their decisions about what they want to do in their future classroom as they realized more precisely what they liked and what they did not like through their experiences in the field. For example, Michelle described teacher authority or control in the classroom as:

> *Controlling students isn't necessary; I don't think it's about controlling them. I think it's about having a relationship with them and saying that I expect you to be a self-manager or to manage themselves; but yes, as a teacher, you need to have an authority, of being able to step in if it doesn't go right, but it comes from trust. When I am into my students, and I expect them to know they need to be behaved and do that in the classroom, it builds trust and so. I won't have to take to control classroom necessarily, but instead, because I want students to learn from each other along with learning from me and so, if there is too much control in the classroom that I am in charge of, then it becomes like a world where there is one king, it's tyranny. I don't want to have that classroom. I don't want to have that feeling of it. I feel like it's more about relationship rather than controlling.*

Michelle was clearly aware of the locus of control and was able to present what kind of classroom environment she wanted to create in the future with pedagogical reasons.

Expectations about the first year of teaching. Weinstein (1988; 1990; 1998) used the construct, *unrealistic optimism* to refer to the fact that preservice teachers tend to believe that they would experience less difficulty on several teaching tasks than what the average first-year teacher actually reports experiencing. However, my participants were not so optimistically biased about their first year of teaching although they reported every semester that they were getting more confident and felt more ready, compared to the previous semester. The source of this "not so optimistic expectations" may be their realization about the professional aspect of teaching after entering their teacher education program. Indeed, the majority of preservice teachers in this study expressed that they did not realize that teaching would need so much effort and time before entering the program. For example, Jane commented on her overall view of teaching as a job in the second semester interview:

> *I thought this job was taking care of kids and having fun and helping them to learn something, but now I realize that there is so much more than that. I mean you ultimately have to prepare students for either how their education will go or getting a job. And, I feel like a lot more, my mindset is, like, toward more content that I am teaching and how I can teach versus hanging out with kids and doing some activities and stuff. It's like getting a lot more serious, I guess.*

Madison and Jackie even expressed that they felt "scared" and "pressured" about being responsible for students' knowledge for one year and for their lives, and these feelings were still there at the end of the third semester.

Preservice teachers' realization about the professional aspect of teaching came from not only their awareness about teachers' high work load that they observed in the field but also their deeper understanding about the nature of teaching per se. For example, Madison was so confident about teaching math because math had been her favorite subject for a long time, and she had been very good at math. However, through teaching math lessons to her students a few times during the second semester, she realized that knowing math and teaching math would be a totally different matter. Paula also mentioned that she realized the work needed behind lesson planning because she had to consider various aspects in order to make one lesson plan, and she spent longer time and found it more difficult than she expected. From her working experience with diverse students, Jane acknowledged that sometimes teaching social skills and procedures should be preceded by introducing higher levels of thinking skills. Similarly, Michelle addressed that teachers should be required to put more effect in order to teach diverse students because they need to consider the students' different cultures, background knowledge, ability levels, and academic and social needs. In the same sense, Jackie emphasized the flexibility needed for teaching and teachers' openness to learning about teaching:

> *I guess for the teacher, it should never feel like you know everything and always realize that there is always something you can learn to use, because things are always changing and children are always changing. Like, children today are not acting like when I was little. So if you are gonna be a teacher forever, then you have to realize that you are always going to be, your job never stop, you are still a student even though you have students, pretty much, because always there is gonna be something new that you have to learn.*

Another source of "not so optimistic expectations" about the first year of teaching may be related to preservice teachers' experiences of struggling between their ideal about teaching and the reality in the field. These preservice teachers were becoming more realistic about what to expect from their students. They realized that students would not all be angels and there would be some "stressful" students. They also acknowledged that all students were not ready for learning how to do problem solving and critical thinking, unlike what they had seen demonstrated as an example of class in the college classroom. Preservice teachers' recognition of reality was closely related to their expectations about the first year of teaching, as shown in Maxine's comments: "O*nly thing that made me realize was it's just not easy to do that because you know, kids take advantage of a situation…..I think it made me be more realistic to say, okay, in my first few years, it's probably, it's not gonna be all that way. I think I am gonna have to be built toward that, It's just, it's 〔teaching is〕 hard."*

Besides students' nature and different ability levels, the presence of the standardized TAKS tests in the elementary grades was another important part of reality. In fact, all preservice teachers except for Heather showed their concerns about teaching in graders with TAKS associated. In particular, the preservice teachers who did student-teaching with TAKS graders often expressed their frustration about some limitations of their teaching or some erratic procedures caused by the administration of TAKS (e.g., mixing classes by grouping students across levels, pulling out students because of private tutoring, having to focus only on teaching math and language arts, having to skip what students wanted to learn, using many worksheets to help students become familiar with

test-type questions, etc.). Among the participants, it was noticeable that Michelle and Jackie seemed to figure out how to handle TAKS tests, whereas Jane and Madison seemed to fail to find a balance between what they wanted to teach and what they were required to teach. Especially for Madison, that failure appeared to influence her confidence about being a teacher and expectations about her first year of teaching. Her comments were revealing:

> *I am little bit scared and I might not be a new teacher, I might be a substitute teacher…a year after if you may talk to me, I am in completely different access from today because I only have really two weeks of teaching by myself. I mean I feel like I have still a long way to go. My ideal is not a reality. It's hard to realize that, but we'll see.*

I will talk more about her case in Part 3 and Part 4.

How Were Students Different in their Development?

As previously addressed, all of my participants were from the same cohort, which means they took the same classes together every semester and did their internships for the same hours per week in the same district. They were as a group pretty satisfied with their teacher preparation program including their coordinator, and all clearly recognized its philosophy of teaching. From their responses about how they felt about their learning experiences each semester, I identified some characteristics about what each semester provided them in terms of their learning-to-teach. If the first semester can be defined as an eye-opening semester about becoming a teacher (as Michelle reflected: *I feel like this semester has been preparing me for the role of being a teacher and what that means*), the

second semester taught them much about students with whom they worked. Increased hours of working in the field (from 1.5 days to 2 full days per week) and more responsibilities such as working with small groups, leading calendar time, or teaching some lessons led them to understand more about their students (as Paula reflected: *I felt like last semester was more experience to me in the classroom, and this semester, it's more like connecting students and finding out what's under their thought*). Relevantly, many preservice teachers experienced the shift of their attention focus from themselves as a teacher to a focus on students in the second semester. During the third semester, their understanding about students expanded not only at the individual personal characteristics level but also at their academic needs level throughout student teaching. All preservice teachers reflected on their progress in classroom management and lesson planning and felt more realistic and ready for teaching at the end of the third semester.

Nature of change. Although their learning experiences for each semester represented these common themes, at the same time, their learning experiences were very idiosyncratic in terms of two aspects: the nature of change and the speed of change. Table 11 showed six categories representing the nature of change that I classified based on preservice teachers' reflections on their learning and conceptual change that they experienced every semester (mainly from their responses to the two questions: "what did you learn the most this semester in terms of your views about teaching?" and "Do you think your ideas about teaching have been modified or changed somehow this semester? How?"). Each category represents distinct processes of change in conceptions of teaching and different degrees of change.

Table 11. Nature of Change in Conceptions of Teaching

Category	From Transcripts
1. Recognizing /Realizing	"I felt like at my school I worked, we do a lot of worksheets and sometimes I thought kids were bored with the worksheet…My style is, like, a little bit to do interactive stuff, more constructivism-based typed assignments. I really realized that, because when I saw them first I was so surprised at how much they knew. I didn't know kindergarteners knew that.."(Paula)
2. Reinforcing	"I felt like it was just comprehension of everything we've learned in the whole PDS, you know, basically, we talked about constructivist classroom and how to be more student-centered, and a lot of examples..It was good and it was just reinforcing everything we've learned." (Maxine)
3. Adding new information	"I thought a lot thing we've learned, definitely the topics that we talked about seemed to be common sense. When we dealt with them, there was a lot more to them. I thought that was really beneficial and every chapter was like that." (Sally)
4. Elaborating in depth	"I don't think my concept was really changed much. Maybe it's more like things have been emphasized more, and it has gone more in-depth. Before, I realized certain qualities teachers have to have, like, they have to know students and to teach them individually, but this semester from the classes I take, I am looking at it from different perspectives." (Jane)
5. Tuning	"I guess in that class, I learned a lot about inclusion not necessarily how to adjust or modify, but in the same sense I did have to learn to modify, because when you include children, whether they have a learning disability or not, it's just learning how to make the lesson work for all of the students for that wide range." (Michelle)
6. Transforming	"Before this semester, I thought that students were a lot more disciplined in the classroom…. but what I found is that a lot of times, really, like, a lot of kids, they cannot learn that way. So you need to be flexible depending on your students, I guess, rather than like trying to force them to learn in the way you want to teach..like, you need to adjust your teaching to the way they want to learn." (Heather)

The preservice teachers often *recognized/realized* consistency or conflicts between how they were taught when they were elementary school students and what they saw about students learning in their placement classrooms, as Michelle reflected:

> *You were not just taking plus sign, this portion and that portion, you are figuring out what the total is. When I was growing up, I was very much a hands-on learner, and so I did problem solving. When I learned that in my math class, I was, like, I did this, I did this. It was easy for me to grasp the concept of the class, but seeing it in my placement, these were nothing like it. It was just so different*.

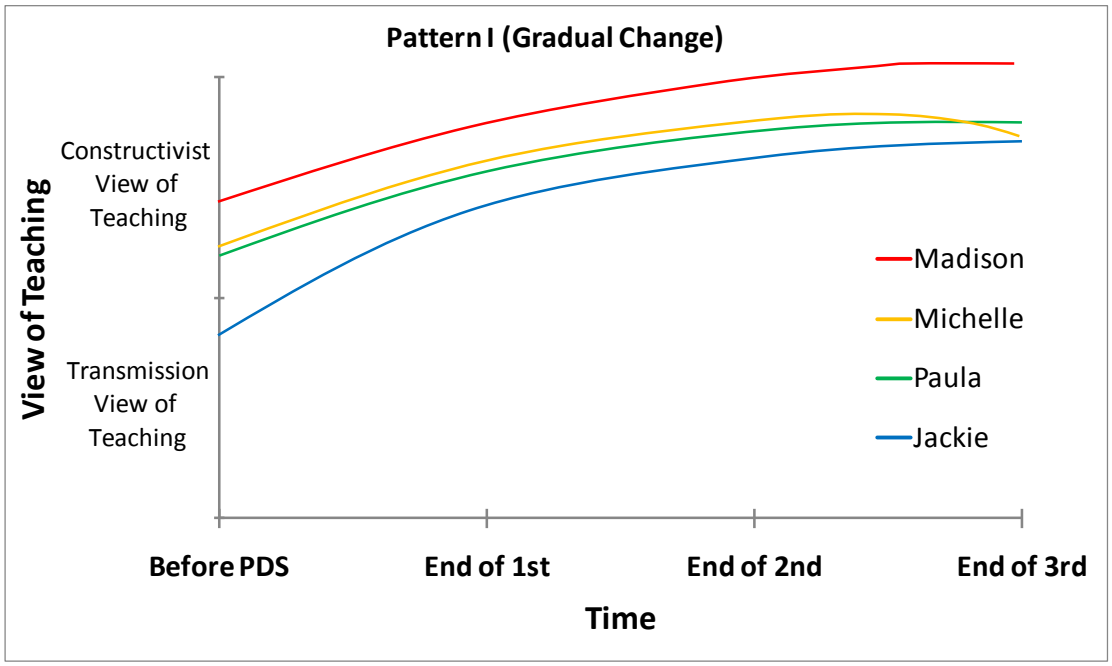
As a result of recognizing consistency, they became fully aware of a certain construct or an idea about teaching, and accordingly they accepted or understood it better. Then, this process was frequently connected to the process of confirming an original idea about teaching (*reinforcing*) or to the process of making their ideas more sophisticated (*elaborating in depth*). On the other hand, when they realized inconsistency between what they were learning and their previous ideas, they came to perceive that what they knew or believed was no longer valid or at least, not in certain contexts, related to the process of *tuning* or *transforming*. Either of two contrary processes could sometimes require the addition of new information (*adding new information*). Thus, the process of recognizing seemed usually to precede other processes of changing. In terms of degree of change, *recognizing* indicated the least degree of change whereas *transforming* represented the most radical change.

Most of the preservice teachers in the study experienced more than two kinds of nature of change in certain aspects of their beliefs during one semester, and these six categories were not hierarchical in some way. In other words, a preservice teacher could experience change processes of categories #1 and #6 for the first semester and then categories #3, #4, and #5 at the same time, or at different time points in the second semester and finally categories #1 and #2 the last semester. For example, Heather experienced all change processes across three semesters. She started with a transmission view of teaching at the very beginning and made a drastic change to a constructivist view of teaching during the first semester (*transforming*) through recognizing that giving students freedom may be more effective than being strict with them (*realizing*) and learning more about students' nature and ways of learning (*adding new information*). In the second semester, her conceptions of teaching were *reinforced* and *elaborated in depth,* confirmed by her working experience with students and an increase in her knowledge or understanding about students. However, at the last semester, her conceptions of teaching seemed to have regressed (*tuning*) a bit because she learned the importance of structure, especially for young aged students, through her student teaching experience with kindergartners, influenced by her cooperating teacher's teaching style. I will talk more about her case in Part 4.

Speed of change. In terms of how quickly the changes occurred that these preservice teachers experienced, three patterns were identified as shown in the following three figures. Four preservice teachers represented the first pattern because their conceptions of teaching developed gradually over the three semesters. The slope of the

four curves is constant and the degrees of slopes are quite similar each other. However, the four participants' developmental patterns still reflected some individuality because of variations in the starting and ending points. Three of them started with constructivist views of teaching and they experienced gradual growth throughout the program, but at the end of last semester, the shape of each curve was a little bit different; Madison's rate of change had stopped increasing, and Michelle's went down a bit whereas Paula's kept on going up (see Figure 4).

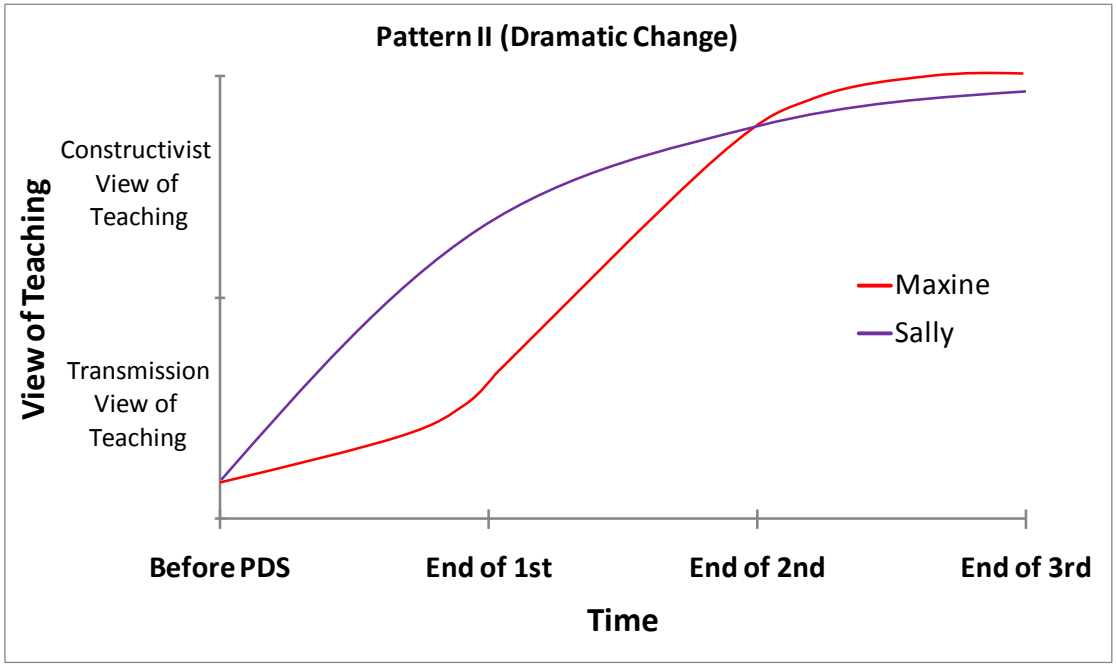
Figure 4. Pattern I-Gradual Change



These differences indicate the influence of their student teaching on their views of teaching in the third semester; Madison could not fully reflect her constructivist view of teaching when making and conducting her lessons because of the TAKS tests whereas Michelle acknowledged the presence of TAKS tests and adopted some teaching strategies to prepare students for the tests, tuning her constructivist view of teaching; Paula could

keep confirming and elaborating her view of teaching through teaching first graders. Jackie showed a similar pattern to Paula, but she started with a transmission view of teaching at the beginning. Her case will be discussed more in Part 4.

Figure 5. Pattern II-Dramatic Change

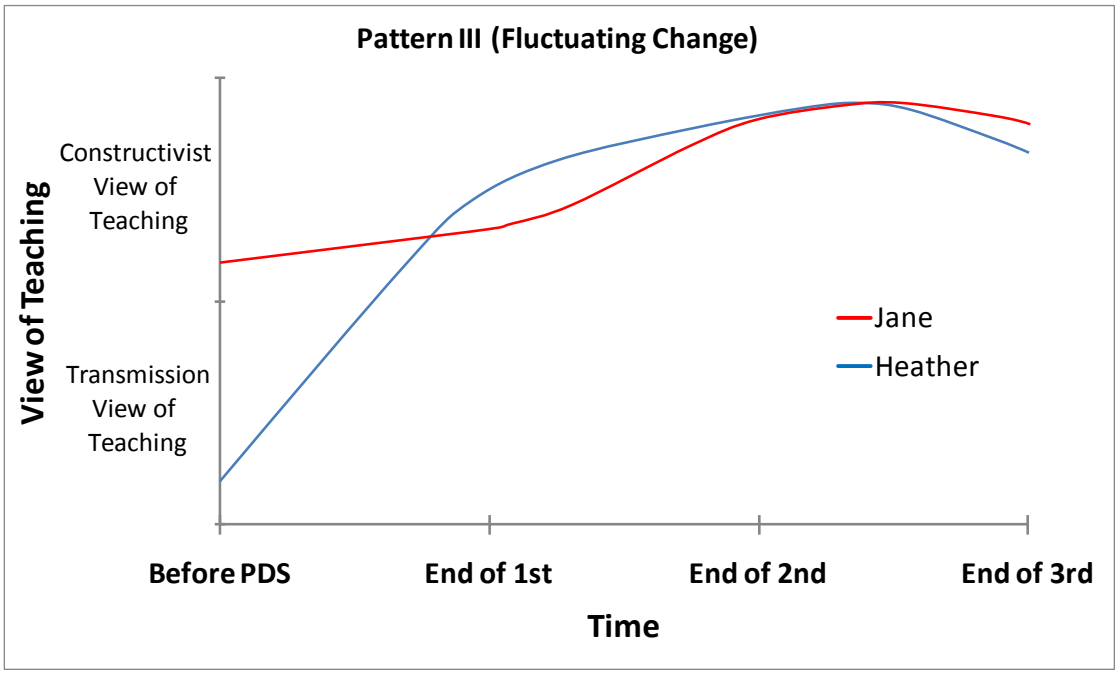


As shown in Figure 5, the second pattern showed a drastic change from transmission views of teaching at the beginning to constructivist views of teaching. For two students, the curves included a steep incline at a certain point, compared to the curves in the first change pattern. Maxine and Sally started the PDS program with strong transmission views of teaching, and they quickly learned constructivist views of teaching. Sally seemed to accept the new view of teaching during the first semester and kept developing her conceptions of teaching by the process of confirming, adding, and elaborating during the other two semesters. For Maxine, she seemed to experience a remarkable change in the second semester, rapidly developing a constructivist view of

teaching. Although she came to believe very strongly in a constructivist view of teaching, she could not fully implement these newly acquired ideas during her student teaching like Madison, but for a different reason. Maxine was the one preservice teacher who most struggled with management issues of students' behavior among her cohort. By contrast, Sally was quite successful in dealing with students' behavioral issues although she taught the same aged group of students (kindergartners) as Maxine.

Similar to the second pattern, the third pattern included a rising slope, indicating there was a remarkable change. However, the curves in this pattern clearly showed an up and down pattern, compared to the previous patterns. For Heather, drastic change happened in the first semester, and her views of teaching were transformed from a constructivist view to a transmission view. On the other hand, Jane had a constructivist view of teaching from the beginning and during the second semester, she experienced the most changes in terms of distinctiveness as addressed before. The notable common thing between the two was that their change curves went down in the third semester. Thus, Heather experienced changes that rapidly went up→up→slowly down, whereas Jane had changes that slowly went up→rapidly up→slowly and little down. Regarding the down part in the third semester, Jane's case was quite similar to Madison's case addressed above in this section. For Heather, she seemed to adjust her constructivist view of teaching through teaching experiences with pre-kindergartners, influenced by her cooperating teacher. Her case will be described in detail in Part 4.

Figure 6. Pattern III-Fluctuating Change



What Made the Changes?

As I addressed in the previous chapter, the PDS program was a three semester-long program, and the first two semesters more focused on coursework (three or four courses and 12 to 15 hours of internship for each semester), whereas the last semester focused on student-teaching with only one course to be taken (see Table 4). Thus, the preservice teachers' experiences in the program can be divided into three aspects: taking coursework, doing internship, and student teaching. Each of these three components were integrated into one purpose of developing into a good teacher, and contributed to the development of conceptions of teaching. More specifically, in this section, I focus on how each component of the preservice teacher's experiences functioned in the developmental process based on three emergent themes.

What they learned in the coursework functioned as a window for looking into the field. The majority of preservice teachers answered in the perception survey (see Appendix D) that they learned student-centered approach of teaching, aligned with the philosophy of the program from their classes at the University (Student-centered: Half&half = 6:2 in the 2009 Fall survey; 5:3 in the 2010 Spring survey). There seemed no argument that their coursework was an important factor that influenced their conceptual change and especially, Sally emphasized it:

> *I think a lot of it is just learning in our educational classes. I mean obviously, we've seen stuff in the schools in our student teaching, but I think majority of things come from our coursework we were taking and also seen like doing lesson planning and seeing how it really worked……So, I think coursework, definitely because the coursework required us to do lesson plans and majority of lesson plans. I think that taught us a lot.*

Majority of participants picked "Classroom management class" as the most helpful course, and as for their rationale, the importance of the topic and its relatedness to their practice were mentioned. In particular, the relatedness to field was common feature of their favorite classes; participants often addressed that it was very beneficial to do assignments or projects that connected the newly acquired ideas to practice, such as tutoring report, writing of critical incidents, or lesson-planning. The preservice teachers also preferred the classes that covered various topics underlined the classroom or various perspectives and strategies so that they could observe or apply them to see what works or

not. They seemed to use the constructs or theories that they learned in the classes as a fundamental lens of looking into the field and actively tried to implement them to their students:

> *It's probably the one I was learning the most from. It's because we covered a variety of topics and also I felt like all stuff were what we could see in the classroom everyday because we had the papers that we had to look for in the classroom* (Jane, 04/09/2009);
>
> *I think they're the classes that help me really connect those ideas and those things into real attainable goals and tell me how to do it. I think those classes are very important because they're the foundation of what we're doing* (Madison, 05/07/2009);
>
> *I really like our assignment and I like papers because we can pick out of topics which one you are really into, I really like after we talked about something, what's going on and go to the classroom and actually I can see it. Even though the week before something we've not noticed, but once we talked about it, he is doing this, you know, I am making connection now so* (Paula, 04/15/2009).

The internship experiences contributed to making the decision of what they wanted in their future classroom. The internship experiences during the first two semesters encompassed observing their cooperating teachers' teaching, working with students in small groups, leading calendar time or reading aloud time, teaching four to five lessons, and attending teacher-parent conferences. Paula mentioned that she was

more involved in the elementary school as the amount of time for the second internship increased, and accordingly, became better at understanding her students and at being familiar with school events or routine. Interestingly, many participants experienced some conflict between what they were learning in the college classroom and what they observed in the elementary classroom, noticing a gap between theory and practice. This dissonance seemed to play a positive role in validating the effectiveness of what they had learned and elaborating their conceptions of teaching, rather than confusing them, even though they sometimes experienced negative feelings such as anger or discomfort. From the conflicts, they learned good and bad and made a decision over what to do and what not to do, projecting themselves as a future teacher who has her own classroom:

> *Not, I mean my view about teaching. Just my view about, I guess, what I like and what I think works and doesn't, you know. Definitely, every teacher has their highs and lows, and things that I just didn't agree with. I don't even think that they did something wrong. It just wasn't what I would want to do with my kids. So, I took good and bad from each of them"* (Sally, 05/10/2010);
>
> *I had a lot of times of being and observing teachers because a lot of the teachers are sitting up there and leading activities in the class. I started to feel I wouldn't wanna do it in my classroom because, like, specifically in math class, the math teacher just sits up there and just talks, tries to teach, but half of the students were not paying attention and doing something else* (Jane, 11/20/2009).

As appeared in Jane's comment, keeping students on task and engaged in what they are doing was an important criterion for them for their future teaching, which was addressed by many of my participants. Besides students' responses, they also considered their own personalities and their professors' or coordinator's feedback when they decided to choose some specific tools or strategies that they want to use for their future teaching.

Student teaching provided opportunities for practicing what they had learned and helped them to be more reflective and realistic about teaching. Student teaching was very different from the other internships that they had experienced in the previous two semesters in terms of the amount of time and responsibility required. The preservice teachers had to attend the placement schools every day and worked one half day and four full days per week for the entire semester. As shown in Table 5 in the previous chapter, after observation for one week, they started teaching lessons from the second week on and had an increase in the number of subjects they took over every week, and finally for three weeks in the middle of the semester, they took all subjects and taught using their own lesson plans. This period was called *total teaching*. After total teaching, during the rest of the semesters, they still had to teach lessons, giving subjects back to their cooperating teachers one by one every week. This whole group teaching experience made preservice teachers understand individual students' academic needs and their background knowledge and abilities and see their students' growth: *"I love to be in the classroom everyday because it gave me an opportunity to see the kids and see their needs and to build lessons around the needs. Whereas in your prior internship, you were only in there two days in a week and half of the week, you don't really get opportunities to see them*

grow as much as I did this semester" (Michelle, 05/13/2010). Through having more opportunities for closely interacting with their students and teaching lessons using their own lesson plans, these preservice teachers seemed more reflective and realistic about what to expect from their students and what worked or did not work: *"The ways my kids behave toward me have made me change my ideas about teaching. So, definitely, every time I was teaching them, I reflected what worked and didn't and tried something different the next day. That kind of made me be stricter teacher type"* (Heather, 05/11/2010).

Relationship between Epistemological Beliefs and Conceptual Change

With respect to the relationship between epistemological beliefs and conceptions of teaching, I had predicted that preservice teachers who had sophisticated epistemological beliefs would be more likely to have a constructivist view of teaching. I had also expected that they would more rapidly accept newly acquired conceptions and actively engage in conceptual change. However, I could not find strong evidence supporting my prediction because my participants' epistemological beliefs scores (measured twice, at the end of the second and third semester using 32 item-Likert scaled Epistemological Beliefs Inventory; see Appendix A) were all higher than the midpoint of the scale and did not have much variance (M=3.69, SD=0.27; M=3.66, SD= 0.20). For one interesting propensity, both preservice teachers who made dramatic conceptual change (see Figure 5) showed relatively higher increase in EB scores at the end of third semester (e.g., Maxine: 3.58→3.78; Sally: 3.69→4.09) whereas preservice teachers who had fluctuating changes and showed a bit regressed constructivist view of teaching

showed decreases in their EB scores (e.g., Jane: 4.19→3.63; Heather: 4.03→3.75). However, I still could not see strong evidence of the influence of their epistemological beliefs as originally measured by the EB questionnaire on their conceptions of teaching.

Based on another EB measure that I used only at the end of third semester (developed by Schraw & Olafson, 2002; see Appendix B), most participants showed the blended position of contextualist and relativists except for Madison and Jackie. Interestingly, it turned out that Madison had the most relativist position and Jackie had the least relativist position among the participants. Although both showed gradual changes in their conceptions of teaching, Madison started with a constructivist view of teaching from the very beginning of the first semester whereas Jackie had a transmission view of teaching in the beginning. For another difference between the two, they showed a bit different attitude toward handling of anything to do with TAKS situation in the placement school during their student teaching; Madison struggled a lot in deciding between what her students wanted to learn and what needed to be taught to prepare for TAKS tests. On the other hand, Jackie seemed to accept relatively easily the situation and tried to meet the goals of her school district when she taught her lessons. Jackie's adaptability (i.e., learning how to joggle between the two different needs) can be explained from multiple aspects, but her beliefs about the existence of a core body of knowledge that every student must learn can be considered as a significant factor in her attitude toward TAKS tests. This will be discussed more in Part 4.

Summary of Findings from Parts 1 and 2

All participants brought their prior conceptions of teaching into their teacher education program. These preconceptions of teaching came from multiple sources. Of those sources, their learning experiences as a student and working experiences with children seemed to be most influential in building onto their prior views of teaching. In this study, not all students began with transmission views of teaching or teacher-centered attention focus before entering the teacher education program. The more they had of professional experiences of working with children, the more student-centered became their attention focus. The majority of the preservice teachers started with teacher-centered attention focus, but their focus shifted toward students throughout the program.

Table 12. Summary of All Participants' Conceptual Change

Pseudonym	Views of Teaching		Locus of Attention		Speed of change	EB position
	Before PDS	At the end of PDS	Before PDS	At the end of PDS		
⊙Madison	Constructivist	Constructivist	Student	Student	Gradual	Most relativist
Michelle	Constructivist	Constructivist (Tuned)	Teacher	Student	Gradual	Blend*
Paula	Constructivist	Constructivist	Teacher	Student	Gradual	Blend
⊙Jackie	Transmission	Constructivist	Teacher	Student	Gradual	Least relativist
Sally	Transmission	Constructivist	Teacher	Student	Dramatic	Blend
Maxine	Transmission	Constructivist	Teacher	Student	Dramatic	Blend
Jane	Constructivist	Constructivist (Tuned)	Student	Student	Fluctuating	Blend
⊙Heather	Transmission	Constructivist (Tuned)	Teacher	Student	Fluctuating	Blend

* Blended EB position of contextualist and relativist, ⊙ focal students for case analyses

All participants ended their program with constructivist views of teaching, showing characteristic developmental paths in terms of the nature and speed of conceptual change. Thus, the teacher education program was quite successful in fostering change in students' conceptions. Lastly, there was no strong evidence to support the influence of epistemological beliefs on those conceptual changes in the data. The conceptual changes of the participants are summarized in Table 12.

Part 3. Identity Development of Self-as-a-Teacher during the PDS program

Another aspect to which preservice teachers' changes in their conceptions of teaching was possibly related is the development of their teacher identity. Many researchers have claimed that students in teacher preparation programs have dual identities, self-as-a-student and self-as-a-teacher because of the ambiguity that accompanies their status as "student-teachers" or as "apprentice teachers." In particular, I was very interested in at what time point would the preservice teachers start to feel they were a teacher and also how the development of their conceptions of teaching would be related to the evolution of their teacher identities. Thus, I asked my participants how they identified themselves in two contexts, their college classrooms and their placement classrooms, and whether they felt like a teacher at the end of every semester. At the last interview, they were also asked how confident they feel about being a new teacher and what is the biggest concern about being a new teacher.

Part 3 is organized into four subsections: prior images of self-as-a-teacher, self-identifications in different contexts, self-confidence about being a new teacher, and dynamics of growing teacher identity. Before presenting preservice teachers' self-

identifications and self-confidence, I first discuss what prior images of self-as-a-teacher they had before entering the PDS program because their initial images of themselves as teachers may play an important role in the subsequent process of their teacher identity evolution throughout the program. Following that, I describe how preservice teachers identified themselves both in the college classroom and the elementary classroom, and how these descriptions were related to their learning to teach. Then, I discuss how confident they felt about being a new teacher and what they were most concerned about at the end of the program. Finally, I describe the dynamics of evolving teacher identity and the relationship between teacher identity and conceptions of teaching, which concludes this part.

Prior Images of Self-as-a-Teacher

All participants except for Maxine had prior images of themselves as a teacher before entering the PDS program. These images were revealed when they explained what their favorite classes or teachers looked like or when they told me their stories of deciding to become a teacher as their profession. Five of them mentioned that they had always wanted to be a teacher with recollections of playing teachers with their friends or siblings when they were young. By contrast, Maxine never had thought about being a teacher, and she said there was no teaching influence ever in deciding to switch her major from Business to Education. She decided to become a teacher after realizing that she was good at giving friends advice and loved helping and tutoring fellow students. Her image of herself as a teacher may have been like a counselor or a helper, but it seemed still vague, compared to other participants.

Mostly, preservice teachers' initial images of themselves as teachers were related to their own experiences as students. The common characteristics of their favorite teachers that they recalled were nice, sweet, warm, and supportive. Several of them reflected that they enjoyed the most fun classes that were full of curiosity, movement and hands-on activities. Based on their memories about their favorite teachers and classes, they seemed to imagine how they wanted to look around children as a teacher, as illustrated in Michelle's and Jackie's comments: *"…. Because those two teachers were genuine and concerned about my education, I would have to say that's how I want to be with my students. I want them to have the joy in their learning…."* (Michelle, April, 17, 2009); *"I admire that in that teacher. I think I wanna teach like her, just trying to find good in all my students I teach."* (Jackie, April, 22, 2009).

Self-Identification in Different Contexts

All preservice teachers identified themselves differently depending on the context, either the college classroom or the elementary classroom. Not simply based on what kinds of acts they were doing (learning acts vs. teaching acts), but also how others such as their professors, cooperating teachers, or children positioned them, influenced preservice teachers' self-identifications. I found five types of self-identifications: (1) Student only identity, (2) Teacher only identity, (3) Equal Student and Teacher identities, (4) Student-dominated identity, and (5) Teacher-dominated identity. Whereas Categories (1) and (2) indicated single identity, Categories (3), (4), and (5) represented dual identities, but the balance between teacher and student mode was different among the three. Most preservice teachers had more dual identities in both contexts rather than

single identities and generally, Category (4) appeared more in the college classroom whereas Category (5) appeared more in the elementary classroom.

More interestingly, preservice teachers' self-identifications were not fixed and kept changing moment by moment within a context. They seemed to see themselves more as teachers in the elementary classroom (*teacher-dominated identity*) because they were treated as a teacher by their cooperating teacher (CT) and by the children, and they also engaged in teaching tasks there. Nevertheless, in the elementary classroom, they experienced times when they saw themselves more as a student than a teacher, such as when their CT helped them out for their college course projects or when they took notes for their future reference about classroom set-ups and daily schedules. Madison mentioned that even while teaching a lesson in front of the whole class, she felt equally like a student and a teacher (*equal student and teacher identities*) because she learned from her students whether the strategy she used worked or not:

> *I am learning just as much from them. I think you need to always assess yourself as a teacher and you always need to know there is room for change and there is room to get better…I was teaching them. That's my job and that's what I am. I am giving them knowledge and scaffolding them, facilitating their learning and guiding them. That's my role. But also, when I teach, I want to do this strategy and I know it's not working, I have to learn that from them and to change it, you know.*

Likewise, in the college classroom, preservice teachers identified themselves as a teacher when asked how to apply what they were learning to their teaching practice. With

having a strong awareness about the purpose of their learning in the college classroom (as Michelle reflected: *we are all teachers like in our classes, because I feel like whatever I learn in the classes, I can apply it to my classroom eventually one day. Even if I don't do it now, I will someday*), they seemed involved more actively in their learning, seeking ways to apply their knowledge. Jackie's comment also supported this point:

> *I think both 〔identify myself as a student and also as a teacher〕 because I am learning what to do and then thinking as a teacher how I can use it in the classroom. So, I think I am trying to do both at the same time. That's why I liked to see the examples of how teachers use it in the classroom, instead of just what to do. I want to know how you do this.*

In addition, the design of courses influenced preservice teachers' self-identification in the classes. For example, in the science method class that they took during the last semester of the PDS program, they were required to explore how to do an experiment using given materials and to do it as a group every class. Because of the class activity, they felt like a student most times in the classroom. Depending on what topics were dealt with, even if using the same format of a discussion activity, they identified themselves differently. Michelle expressed how she identified herself differently every week in one class that she took in her first semester of the PDS program:

> *When we had our discussion on stereotypes, I feel like I had to put on my teacher hat, and say, "ok, here's how I want my classroom to be run." When we talked about lining the kids up, I thought I don't want to do a boy and girl line. Whereas with self-regulated learning, I thought more as*

a learner because self-regulating learning applies to me as a learner, like, I am still learning new things, but as a teacher, too because I wanted to talk about self-regulated learning with my CT and to observe the students regulating their own learning, seeing if my CT offers that and thinking how I would do that in my own classroom.

Whereas most preservice teachers experienced the dynamic switch of two different modes moment by moment during the process of building their image of themselves as teachers, interestingly, Jane showed gradual changes in self-identifications over the three semesters. In the college classroom, her self-identifications shifted from as student only identity→student-dominated identity→teacher-dominated identity, whereas it was student only identity→teacher-dominated identity→teacher only identity in the elementary classroom. In the first semester, she identified herself only as a student in both contexts, but as time passed, she started to identify herself more as a teacher, and in the last semester, she felt more like a teacher in both contexts. She also recognized these changes in herself and explained the cause as following:

I guess I did feel more like a teacher. I was there to get resources to use in my classroom. So while I was there, I would always think, "ok, would I use this with my students?" or "would this work with my kids?" So I do feel like that's one thing different from this class than all the other classes; because all the past classes, I felt like I was just kind of learning about it, and it's hard to think about it and apply it when I haven't really had my own classroom. And, like, the internship, it wasn't really the same

> *because we were only there two days a week, and I didn't really feel like it was my classroom. Then, for the student teaching, I'm there every day, and I'm teaching every day, so I did feel like it was kind of like my classroom. And so yeah, in this class, I felt more like a teacher.*

Although she felt a burden of taking a course at the same time she was doing student teaching during the last semester, she addressed the benefit in terms of making it easier to make a connection between what she was learning in the college classroom and how she acted in the elementary classroom. From her case, the relatedness between theory and practice played an important role in constructing these preservice teachers' teacher identity.

Self- Confidence about Being a New Teacher

The majority of these preservice teachers' self-confidence about being a teacher increased more and more as the semesters passed. At the end of the last semester, most of them addressed that they felt like a teacher now and showed their excitement about being a new teacher and having their own classroom, even as some of them admitted that it is not going to easy and that there was still room for learning. However, Madison and Maxine were not positive about their readiness to be a new teacher, and their responses to the question, "Do you feel like a teacher now?" were that they would not feel like a teacher "until when I really have my own classroom" or "until ten years after I teach." Both came to hold very strong constructivist views of teaching at the end of the PDS program and shared common characteristics in the process of developing their conceptions of teaching although they started with different preconceptions of teaching at

the beginning of the program, with Madison holding a constructivist view of teaching and Maxine a transmission view of teaching.

Madison and Maxine were very critical of what they observed during their internships. Madison often expressed her anger about teachers' ways of treating students and teaching subjects in her placement school, especially, during her second internship, when she worked with 5th grade teachers who used a team-teaching strategy and so, she could observe other teachers' teaching of math and science, in addition to her cooperating teachers' social studies and language arts classes. Maxine also pointed out how different were specific strategies or behaviors that her cooperating teachers or the substitute teacher with whom she worked showed from what she had learned from her coursework. Maxine even showed a critical stance about what she had learned at the university classroom: "*I do find a lot of stuff we learned in the classroom management classroom, some of it seems to be really hard to be practical, you know more theoretically-based, and I can't think of an example, but just some of them, I remember I thought how am I supposed to apply that actually*" These dissonances they experienced both in the college classroom and in the field seemed to make them very reflective about themselves, i.e., about whether what they did in the field was consistent with what they were learning in the college classroom. Relevantly, they identified themselves as both a teacher and a student (*Equal Student and Teacher Identities*) in the college classroom and also in the elementary classroom throughout the program. The continuous switch of two modes may have helped them be more self-reflective about themselves.

Last, Madison and Maxine both struggled during their student-teaching though for different reasons; Madison could not plan and teach what her students wanted to learn in the way she wanted because she taught third graders during a period of the year when the children were preparing for TAKS tests. Maxine also could not teach what she planned because of her kindergartners' behavioral issues. They often reported the gap between their ideals and their realities that they had felt during their internship These conflicts seemed to help them have more and more critical eyes about and be more self-reflective about teaching and learning, and accordingly, their conceptions of teaching became internalized and their understanding about the complexity of teaching more sophisticated. Although they seemed successful in what they were supposed to learn from their programs, the failure that they experienced in the field contributed to a relatively lower self-confidence about being a new teacher. However, they were not either negative about their experiences of learning and working with children in the program or desperate about their future. They were simply aware of the long journey that teachers should make to be a great teacher. Indeed, they emphasized the incessant need of learning as a teacher for their entire career.

Regarding preservice teachers' biggest concern about being a new teacher, what these participants addressed most frequently was the need for support from administrators or districts. Through their field experiences, they seemed to recognize the influence of administration on their teaching, as Sally reflected: "*I felt like it much more depends on where you work because schools, I mean from the district to district, just from school to school, depending on what principal you have, it does make differences as far how you*

can teach and what you teach." They also wished to have other teachers' support or a working team's help concerning the limited accessibility to all resources needed for their teaching as a novice teacher. Another concern was related to their own teaching and divided into two aspects such as "teaching lessons" and "managing the classroom." With respect to teaching lessons, Madison was concerned about coming up with lesson plans for all subjects that she had not yet taught, expressing her feelings of "overwhelmed" about constantly finding something new in order to meet students' different needs. Jackie showed her worry that students might not understand what she would teach and wished that her students could apply what they would learn from her to different situations. Regarding managing their classroom, preservice teachers were concerned about having a good management system, getting respect from students, or setting all procedures in the beginning.

Dynamics of Growing Teacher Identity

The evolution of teacher identity and development of conceptions of teaching did not happen separately. Preservice teachers' past learning experiences influenced not only what they believed about teaching before entering the teacher education program but also their prior images of themselves as a teacher. The continuous validation of their prior beliefs and self-images throughout the program seemed inevitable, and it is, in fact, an essential operation in preservice teachers' professional growth of both aspects. In those processes, cognitive dissonance that preservice teachers experienced from the gap between what they had believed and what they were newly acquiring, between theory and practice, or between their ideal and reality, seemed to play a critical role in making their

conceptions of teaching more sophisticated and at the same time, influencing their teacher identity formation.

Another important factor involved in developing conceptions of teaching and teacher identity was knowledge of students and shift of attention focus. The more student-centered were their conceptions of teaching by the end of the semester, the more invested in teaching were the students, the more willing to put in hard work and effort, and the more accepting of the complexity and challenge that teaching would offer. Thus, development of teacher identity and conceptions of teaching seemed to go together in the process of preservice teachers projecting themselves as a teacher throughout their teacher preparation programs, a primary part of the long journey of becoming a teacher.

Part 4. The Reflection of Teaching and Epistemological Beliefs in Student Teaching

The relationship between teachers' personal beliefs about knowledge and teaching and their teaching actions has always been a topic of considerable interest among educational researchers and teacher educators. In spite of substantial amount of and long history of studying this topic, the previous research has failed to show consistent results. Some studies have reported that teachers' relativistic epistemological position or constructivist view of teaching is associated with some positive teaching practice whereas others have found that there was no strong relationship between teachers' espoused beliefs and their instructional practice. Given such inconsistency and the importance of this topic in teacher education, I investigated how preservice teachers' beliefs about knowledge and teaching are reflected in their student teaching and what contexts are needed to facilitate the activation of their beliefs in teaching. Of eight participants, I

selected three focal students based on their ratings of epistemological positions on the survey conducted at the end of third semester and their rationale for their choices spoken during the third semester final interview. As shown in Table 12 in the summary section of Parts 1 and 2, I also tried to consider the variation in patterns of conceptual change among focal students. I begin by providing a profile of all three focal student cases so as to show their juxtaposition and then describe in more detail each case.

Profile of Focal Students

Heather. Heather originally began her undergraduate work in speech pathology. She stated that her tutoring experience at an elementary school before becoming an education major convinced her to change her major because seeing the progress of students whom she was tutoring was very rewarding and figuring out a better way of helping people grow was very interesting to her. She also had a teacher in her family. Her mom taught kindergartners and she had often helped out in her mom's class since high school. Heather reflected she had been very well connected to her teachers especially when she was an elementary school student, which made her enjoy her school life and the good grades she earned throughout her school years. Her strong desire to be able to affect her students led her to choose this cohort focused on teaching students in low-income based districts as her first choice.

From my observation of how she was as a student in one of her courses for one semester and several interviews with her, I noticed that she had strong motivation and clear goals for each semester of the PDS and seemed a very proactive student, seeking what she really wanted or needed for her growth. She worked with three different levels

of students for her internships, kindergarten, fourth grade, and pre-kindergarten. In particular, when she was choosing a cooperating teacher whom she would work with for her student teaching, Heather asked her program coordinator to recommend her to an especially effective teacher, and she was very satisfied with working with her last cooperating teacher. Regarding her epistemological position, her ratings on the survey indicated that she had a blended position between a contexutualist and a relativist position. As shown in Figure 6, she was one of the participants who quickly showed a dramatic change in her views of teaching from a transmission view to a constructivist view. However, she was considered to fall into pattern III (fluctuating change) because after her student teaching, she seemed to finetune and adjust her view of teaching into a direction that was slightly less constructivist.

Madison. Like Heather, Madison changed her major this time, from math to education. With respect to this major change, she explained:

> *So, I ended up transferring to the education school because I think that's what I wanted to do all along. My parents expressed that they really didn't wanted me to be in that field because my mom was a teacher and she knows how it is, and I mean, I do have a lot of math skills, and they thought I would make better money if I would be in the engineering camp. But, I don't think that's where my heart was.….I think I've always wanted to be a teacher. I've switched on and off, but I always went back to it. I don't know. I've always had it in me. I can't really explain it. I know that's what I enjoy.*

Madison had certain things in common with Heather; her mom was also a teacher, which influenced her in having an interest in a teaching career, and she had many good memories about her elementary school teachers and her interactions with them.

However, the process of developing her conceptions of teaching during the PDS program for Madison was very different from Heather's. Madison started with a constructivist view of teaching and student-focused attention at the very beginning of the PDS program and among all participants, her prior conceptions were the most sophisticated in terms of their distinctiveness of articulation. As mentioned in Part 1, I postulated that this might be because she not only had had positive learning experiences as a student but also her working experience with children for relatively longer years than others already taught her about how to deal with students. Throughout the program, she gradually reinforced and elaborated her own views of teaching especially by experiencing the gap between what she believed and what she was seeing in the field. Her conceptions of teaching remained on the highly constructivist side even at the end of the program, but she was still concerned about how her actual teaching would reflect her ideal. She did her internships in kindergarten, 5th, and 3rd grade classrooms. Regarding her epistemological position, she was considered as the most relativist among the participants from her ratings of the survey and she strongly believed that knowledge is changeable and subjective and accordingly, that nobody can teach students what is important for them, but students must learn for themselves.

Jackie. Unlike Heather and Madison, Jackie had had a traditional entry into the teacher education program. She started her undergraduate study with education as her

major and especially with the goal of working with students who have low socio-economic status. She said that she had dreamed of becoming a teacher since working as a tutor in one of the national service organization in her last year of high school. She recalled how enjoyable her teaching experience was when she worked with first and fourth graders as a literacy teacher in the organization:

> *I think from just watching them and seeing how far we got over the year, I realized that maybe this is my niche. I really liked watching children learn. It was really amazing because I remember that one of my first graders, he didn't know any letters and sounds, but by the end of year, he was the best reader in his class. And one girl, one of my fourth graders, she was only at kindergarten middle level as a reader, but later she was reading chapter books by the end of year. So, I liked that, and I think that's what pushed me to be a teacher.*

Also, her experiences of helping in different "rough" neighborhoods around the country through some missionary trips before entering college influenced her to choose this cohort that was focused on teaching students in low-income based districts.

However, Jackie was not a usual student as compared with the other participants in terms of her own K-12 learning experiences and her memories about her teachers. She had experienced some degree of difficulty and isolation as a minority student (as she was black American) when going to a white elementary school and even said that she would not want to go back to her middle school because she felt her teachers did not like her and she struggled with some classes. However, she still had some favorite teachers, and one

of them who had taught her the importance of respecting people's differences had strongly influenced her conceptions of teaching. From there, she had kept her interest in diversity issues, which led her to work with first and fourth graders during her student teaching to obtain another teaching certificate (bilingual teacher certificate). She very much appreciated her student teaching experiences:

> *I got the feeling that I got the best internship among everybody because I worked with two grades at one time…I know two grade level curriculum and how to deal with both types of students and also remember that I can teach any grade because I can work with my fourth graders and then they have more freedom. And my first graders were more guided in what we all did together. So, I think I learned to teach two different types of learning, really.*

Regarding her conceptual change, she began with a transmission view of teaching, but gradually developed toward a constructivist view of teaching throughout the program. Her survey responses showed that she had the least relativist epistemological position among the participants.

Description of Three Cases

As described in the previous section, all of my focal students ended the second semester of the PDS program with constructivist views of teaching. Although the level of sophistication was not the same, they shared the gist of constructivist views of teaching such as: (1) good teaching is to guide students in discovering their knowledge on their own rather than lecturing them about what they need to learn; (2) students learn the best

by doing hands-on activities and problem-solving; (3) as a learning community, classrooms should be safe, comfortable, and positive environments where students have ownership of what they are learning. Beyond these three ideas about teaching, what other ideas of teaching were emphasized by each of the focal students in their interviews before starting their student-teaching is addressed first and then how those beliefs were reflected in their student-teaching is discussed, case-by-case.

Case 1-Heather. Heather's ideas about teaching as identified before student teaching were as follows:

1) Knowing my students and getting their trust is the most important thing in teaching.
2) Taking my students' likes and putting it into what they need to learn is the best way of facilitating their knowledge.
3) Effective teachers should figure out how students learn the best and allow their knowledge to shape their lessons.
4) Good teaching is energetic, enthusiastic, and gets students involved and moving.
5) Teachers should be lenient with rules, and it is not always a good thing to punish students immediately once they break a rule.

When I observed two language art classes and one math class that Heather taught to pre-kindergarteners, she was energetic in her teaching and looked very comfortable and confident with her students. For their part, the students also looked very excited to participate in her classes and behaved very well. Her classes were full of students involvement and movement, and she tried to make students discover things on their own.

For example, when she taught students about what wind can do in one language art class, she let students go outside to explore what wind can move after briefly introducing what wind is by asking students the question, “can you feel air is hitting on your face?” in the classroom. After coming back to their classroom, students made a good list of what things wind can blow, such as paper, hats, yellow flowers, hair, etc. from what they had observed or what they remembered from their past experiences. When students did not name the word “hair,” Heather pulled one girl who had long hair and asked her to tell students the story that she had shared with Heather on a previous day (on Sunday, she had lost her hat because the wind made it fly off). While students listened to the girl’s story, Heather showed students the girl’s hair blowing and helped students to come up with the word, “hair.” Regarding this incident, she reflected afterwards in the interview:

> *I was surprised that no one said hair. So, I wanted them to say hair… I guess I made it visual because they are still learning English. So, when I just say “wind can move hair,” some of them did not get what hair is……They are not a lot reading the words, you know, they are reading the drawing that I made. So, that’s why we draw the pictures so that they can see the pictures.*

When she taught the concept of size such as “big-bigger-biggest” and “small-smaller-smallest” in math class, she used hands-on activities such as putting ducks in different sizes of puddles or making students stand on different sized paper clouds in order for them to see the concept.

As revealed in her comment above, she was very well aware of where her students were in their development and what they already knew or did not know, and considered it in planning her lessons. She often addressed some nature or characteristics of her students (e.g., “They only can focus for 7 or 8 minutes”; “Although they know, if we stop it for a while, some of them may forget”; “Some student who were fidgeting are the ones who already know the stuff. That’s why we have to make it fun”). Also, when students gave her a wrong answer, she did not immediately correct it. Instead, she reminded them of what they already learned and helped them to recognize why it is not correct. In order to manage students’ behavior and create a positive learning environment, Heather used many positive comments such as “How did you know that? So smart!” “It was the best time to sing this song” or “Thank you for your patience.” In general, I noticed that Heather’s attention focus was student-oriented, and she was very concerned about her students’ feelings and their learning during her teaching. When asked about how she felt about her teaching at every interview, Heather started with how her students felt (e.g.,“They liked it. They had fun outside”; “They were a bit bored”; “They were excited about it, especially for the puddle work ”; “ They were pretty smart with coming up the words.”) She also judged whether the class was successful or not by how well students learned, revealing students’ engagement and accomplishment.

With respect to her conceptual change after student teaching, Heather admitted that she had experienced some change during the third semester at the final interview:

> SoonAh: *Have you felt that your conceptions of teaching have been changed in some ways this semester?*

> Heather: *Yeah, I used to be too free, like, "oh, they can do all of these silly things." But now I know they have to have a structure and I have to be firm with them to get them to behave because if they can't behave, then we can't have fun. So, that's how I changed.*

She expressed slightly different ideas about teaching from what she had said before student teaching: 1) when students are not good, there have to be consequences, 2) it is okay that a teacher explains something and students sit still and listen to the instruction, and 3) in order for students to be able to create knowledge on their own, first it is important that I am giving them information and presenting it in a way. She attributed these changes to her cooperating teacher's direct advice and her students' responses or behaviors toward her that she had throughout the semester. I interpreted that her newly continued ideas of teaching represents a tuned constructivist view of teaching that she modified a bit toward a more transmission view through being exposed to students for the whole semester and actually teaching them many lessons (see Figure 6).

***Case 2-Madison*.** Madison's ideas about teaching as identified before student teaching were as follows:

1) Students getting information through their inquiries is much more meaningful than teaching by saying "this is the information you should know."
2) Teachers should be a support and guide to students' learning and care about them as a person.
3) Teachers should make a classroom welcoming, and a safe and positive environment, which is a foundation for good learning to take place.

4) Good teaching is to let students see the processes and figure it out in groups together.
5) If you don't have some control of kids, you cannot teach them, but more importantly, you have to make connection with students and teach them to control themselves.

Madison worked with third graders during her student teaching. Her total teaching period (teaching all subjects with her own lesson plans for three weeks) started in the week before the period of preparing for TAKS tests (the state standardized achievement test). Her school had a special system of preparing for TAKS tests that other schools in which my participants were placed did not have. Ignoring their homeroom assignments, all third graders were divided into five groups based on their scores on the practice TAKS tests, especially for reading and math lessons, and each group took the review and practice classes that fit with their levels and that were taught by one of the third grade teachers until the date of taking the actual TAKS tests (for about a month). Madison's cooperating teacher had the second highest group for reading and the middle level group for math class, and accordingly, Madison had to teach those groups as well during the preparation period for TAKS tests. My class observation of Madison consisted of observing her when she taught one math class before the TAKS preparation period, and one reading class and the other math class during the period.

Interestingly, her two math lessons looked quite different from each other. In the one she taught before the TAKS preparation period, she worked with her own classroom students and used the discovery method to teach them how to add money. She started the

class with the question, “what do we do with money?” in order to let students begin to figure what they would learn. She made them use manipulatives as a way of finding out how to add numbers with decimal places in groups. She reflected afterwards: *“I didn't want to lead them into, oh, we're gonna do adding money today. By talking about what we buy, I was hoping they knew, oh, when you buy two things, you have to add it up. They did kinda〔figure it〕out so quickly.”* For the application task, she provided students with a menu activity as pair work. For the activity, students took the role of either the waiter or the diner and switched roles and, then partners, by moving to another group. In this activity, the waiter added all prices of foods ordered by the diner and the diner checked the bill and paid in paper money. All students participated in this activity and looked as if they were enjoying it. Madison also felt successful about her lesson because students seemed to enjoy the menu activity and all seemed to understand what to do: *“They liked to get up and move, and so it's good to have them get up and then move to work with a new person. It's more fun, I think, not having the same person every time. In that way, they, different levels work together. The kids who get it really well maybe work with the kids who are struggling and help them to make it,”*

By contrast, she expressed how difficult she felt the lesson had been after finishing the second math class:

> *I feel it seems so hard to get them to do math everyday because I have low kids. I had to constantly do, like, “are you listening? what are you supposed to be doing?” It's hard because we cannot really do hands-on activities for the review. I was trying not to be standing up there and*

saying this is what you need to do, but this is hard. Math is hard right now…..We were just reviewing stuff for the TEKS tests and practicing skills like today, the TEKS 11.8. That's what had to focus on all day.

The class was about reviewing measurement, and she had to teach the topic because it turned out that her group of students struggled with discerning among different measurement units and choosing an appropriate unit for measuring different sized objects from the practice tests for TAKS. She directly introduced what to do at the beginning of the class and used flash cards to explain the definitions of several measurement units to the students. Then she distributed worksheets to check whether her students had understood the differences among the units and to have them solve the TAKS types of problems. After the class, she looked unhappy and was unsure whether the students really had understood the concepts well. Also, she explained the parts where she could not follow her lesson plan because of students' slow responses and reflected on which part she would need to change to make it clearer the next time.

Generally, she was very reflective about her own teaching and tried to validate her teaching from what she had learned in the college classroom. Her comments at the third semester final interview were revealing: *"I didn't get the method I have been taught at UT, they kinda figure it out themselves and you're to guide them, not to tell them, you know what I mean. I told them and then guided them, okay, now you have it. So, that was because of the situation with TAKS tests, and they were in third grade."* Apparently, Madison felt she had failed to find a balance between what she wanted to teach and what she had to teach as compared with Michelle who taught the same grade at the same

school. Whereas Michelle adapted to the presence of TAKS tests and found her own way of dealing with the issue with students, Madison described the disconnect between her ideal and reality. The following comments that Madison and Michelle made at the final interview after their student teaching clearly showed differences in their attitudes toward teaching in the TAKS situation.

> Michelle: *If I am with a TAKS grade, I will do TAKS practice, but the centers, work stations should be fun activities that covered the objectives so that they are learning about multiple formats and also have them do practice with peers. So they are scaffolding each other and experiencing something in a different way, whereas I pull out a group and we will do TAKS or worksheets. If I have a younger grade, we will do bench marks or test stuff like that. So, I will show them objectives in that format and test in that format. Just so they are used to seeing that and knowing that okay, you can have fun in learning, but here is also another way to learn.*

> Madison: *Probably I have an idea, like, teaching is to come in there and do a lesson, here is our learning about, and then go and discover, but that's not happening because they don't have time to go and discover. Kids and I want to discover, here is an experiment, this is right or not, you know. It's kind of my ideal idea that didn't come true, but it is still, I still really enjoyed it and just trying to teach them as much as I can, the best work for them. That's all that I am trying to do, just not happening like what I screened in my head, so. I mean, you believed and dreamed it, but you go in there, and it's not reality.*

Indeed, Michelle and Madison showed different opinions about the way to divide students by levels across classes that the school used for one month for preparing for

TAKS tests. Michelle appreciated that these were some benefits to leveled group teaching, such as teachers knowing exactly what the students needed and students feeling equal to each other, but Madison showed a strong resistance to the method, saying:

> *I don't like it because I have no kids there as an example or challenging other kids. They are all the same level and you can't pair them one kid with the other kid, you know. I like the mixed group because they help each other, and they challenge each other, and I am not the only one who provides help to one kid because while I am helping another kid, the one who understands early can go to help the ones who don't or help them think about it in different ways because they have different ideas.*

These differences finally led Michelle and Madison to end their teacher education program with slightly different points of view of teaching and quite different degrees of self-confidence about their future teaching although both had started with constructivist views of teaching and shared many similar things in the same program. Whereas Michelle was considered to have a tuned constructivist view of teaching at the end and showed strong confidence about being a new teacher, Madison was one of two students who showed the least confidence about being a teacher, and she expressed continued concerns about making and conducting lessons, although she kept a strong constructivist view of teaching at the end of the program.

***Case 3-Jackie*.** Jackie's ideas about teaching as identified before student teaching were as follows:

1) Good teaching is opening students' eyes to something from various perspectives and helping them to find how they can use the information later in their lives.
2) When students don't understand something, teachers never should blame it on students and instead, should try to understand students and think what do need to fix in my teaching.
3) In order to make an individualized classroom that works for all students, teachers need to try to figure out what works for themselves first and what works for their students.
4) Teachers should never stop learning because children are all different and keep changing.
5) A classroom should be a learning community where students work together and listen to each other and have discussions.

Jackie worked in two different grade level classrooms for her student teaching. One was a first grade classroom where students did not speak English well, which was needed for her to receive an ESL certificate. The other was a fourth grade classroom where she had worked in the previous semester for her second internship and accordingly, she was already very familiar with her students and the teacher when starting her student teaching. I observed her teaching to both classes and noticed that she followed more the procedure that her cooperating teacher used when she taught first graders. Jackie reflected after teaching her first grade students how to read the calendar in math class:

> *That's her set up. The first three things I did, I actually did because she does this every day for math. We have to write a date and have them do a problem solving, and they do TAKS practice. That's what she implements in her classroom. So, in my own classroom, I wouldn't do all of them, but will do it differently. I will have a date because it's important and they are really little, but probably for the problem solving, I want THEM to explain it so that I can see what they are thinking, not like me saying okay, this is how you solve it.*

Sometimes, she corrected her questions to students on the spot to follow the guide questions of the textbook because her cooperating teacher liked to use them, although she did not like using the textbook. It is not that Jackie felt uncomfortable with the cooperating teacher because she seemed to respect her CT's experience of working with bilingual young students and to adopt the idea that the majority of her first graders needed more directed and specific guidance before letting them explore something because they did not speak English and did not necessarily know English vocabulary. Thus, Jackie seemed to find a balance of how to incorporate what her CT usually did with her own teaching strategies when implementing her lessons. For example, instead of showing students just one month's calendar and explaining how to find a date and read a day, she gave students a big calendar of different months in small groups and let them interact with the calendar first.

Regarding her teaching to fourth graders, Jackie had more freedom about doing whatever she wanted and she used group work and discussions. She was very well aware

of what students already knew and considered some students' specific needs when planning her lessons. For example, she prepared a Spanish worksheet for a new student who could not speak English at all and also provided a different format of worksheet for a special needs student who had dyslexia. As for managing students' behavior, she implemented an individualized discipline system for three students who did not usually concentrate in class and often did not follow her instruction at once. From observing her lessons, I noticed that Jackie was very good at follow-up questions to provoke students' further thinking, and she never said no to students' wrong answers. Instead, she said "Okay, save it! We will get back to it later" and asked the students to get help from other members in their group. Sometimes, she asked students to share the answer first with their partners before presenting it to the whole class.

In general, Jackie's teaching was quite student-centered, and it was aligned with her beliefs about teaching developed throughout the program. When I asked Jackie, "do you think your ideas about teaching have been modified or changed in some ways this semester?" at the third semester final interview, she answered that she had come to realize how she can put her ideas about teaching into reality, rather than changed something. Actually, when she was asked the same question at the previous semester final interview, she expected that she would need to modify her conceptions of teaching quite a bit because of the TAKS tests of the next semester, and she worried about working with TAKS graders. Although she said that "nobody" like the TAKS tests, she seemed already to accept the presence of TAKS tests and believed that teacher-directed teaching would be effective for the TAKS practice. Thus, despite her early concerns, the

TAKS tests did not impact her teaching and she did not need to do anything very different from because her school placed the responsibility for TAKS preparation on the teachers of TAKS grades, and her fourth grade cooperating teacher did not count on teaching TAKS packets. Regarding this issue, Jackie mentioned that she was lucky because she did not need to use worksheets in her lessons and to work with grading worksheets, compared to other colleagues placed in other classrooms or other schools. She learned how to deal with the TAKS tests from her CT as reflected in her comment:

> *My fourth grade teacher taught me how to teach when I teach the TAKS because when we taught reading, she taught students just the book to teach, how to find main ideas and how to find cause and effect. And then she gave students a few practice questions. She wasn't directly teaching how to do the TAKS tests and she was just using the reading materials we had done.*

She also mentioned that her first grade teacher taught her how to juggle the district demands with what she really wanted to do. Therefore, she seemed to figure out the balance between what she had to teach and what she wanted to teach with the help of two very experienced cooperating teachers, which contributed to her success in growing her conceptions of teaching and being ready for her first year of teaching.

Relationship between Beliefs and Actions: Cross-Case Comparisons

Despite idiosyncrasies in developing their conceptions of teaching, the three focal students ended their second semester of the PDS program with constructivist views of teaching. My analysis of these three students' student teaching showed that conceptions

of teaching were closely related to their teaching practice. Their beliefs about teaching led to choosing specific materials, activities, or methods when preparing lesson plans and also influenced certain changes in teaching actions on the spot caused by their students' responses. Interestingly, these on-the-spot changes reciprocally led to a modification of some aspects of beliefs by the process of reflective thinking as shown in Heather's case. However, preservice teachers' conceptions of teaching were not always reflected well in their actual teaching. Some environmental conditions such as where they were placed (e.g., districts, schools, classrooms), whom they were working with (e.g., cooperating teachers, students), or when they were teaching (before versus after the TAKS preparation period) played important roles in preservice teachers' ability to implement their lessons.

Sometimes, cooperating teachers' beliefs, teaching styles, or their openness toward interns required some modification of preservice teachers' lesson plans and actual teaching actions, but did not impact much on what they believed about teaching, in general This may be because preservice teachers' conceptions of teaching developed throughout their teacher education program helped them to keep a critical stance when working with their CTs. On the other hand, students' grade levels, ability levels, or academic needs seemed to influence the flexibility of not only preservice teachers' conceptions of teaching but also their future teaching actions. The three focal preservice teachers were alike in being concerned the most about their students' understanding of the lessons they had taught. After teaching, all these mentioned that they would teach something differently the next time based on their students' responses.

In addition, the presence of the high-stakes assessment, the TAKS tests in the field had a substantial impact on preservice teachers' teaching actions and the process of validating their conceptions of teaching. As shown in Madison's and Jackie's cases, whether or not they figured out how to deal with it and found a balance between what was mandatory and their idealized view seemed to influence preservice teachers' feelings about their readiness for their first year of teaching and their confidence about being a new teacher. Regarding this issue, experienced cooperating teachers' good modeling seemed very helpful for preservice teachers to learn how to cope with mandatory requirement and be ready for getting into the reality.

Finally, with respect directly to the relationship between epistemological beliefs and teaching actions, my data showed that epistemological beliefs did not appear to be strongly related to teaching practice. There were no noticeable differences in planning and conducting lessons between the least relativist (Jackie) and the most relativist (Madison) participants. Jackie and Madison had started with different preconceptions of teaching, but both ended their teacher education program with a constructivist view of teaching, and the present conceptions of teaching that they developed throughout the program seemed more directly related to their student teaching actions than their epistemological beliefs. As addressed before, preservice teachers' epistemological positions may influence their different attitudes toward the presence of TAKS tests, but other factors such as grade levels of students and the influence of cooperating teachers should also be considered.

CHAPTER 5

DISCUSSION

The purpose of this study was to gain a better understanding of how preservice teachers professionally grow in their teacher preparation program. I focused on ways that their conceptions of teaching and teacher identities develop during the three semesters of their teacher education program and the relationship between these two aspects of growing. My interest in preservice teachers' conceptions of teaching stemmed from my belief that the essence of teacher education lies in helping them to have sophisticated beliefs about teaching and learning and to establish their identity as a teacher. In addition, I held that what they believe about teaching is likely to influence in some ways who they want to become as a teacher and their approaches to teaching.

Tracking one cohort of students in a teacher education program allowed me to explore preservice teachers' developmental trajectories. I started this study from observing them in one course on psychological principles as these apply in the classroom, one of required classes in their first semester of the program, and I interviewed them at the end of each of three semesters about their conceptions of teaching. In addition to the methods of naturalistic observation and semi-structured interview, data collection involved collection of artifacts and administration of surveys. Analysis of data was inductive, interpretative, and qualitative and relied on techniques of grounded theory.

In this chapter, I begin with a discussion of what my research has contributed to our understanding of developmental processes of preservice teachers' beliefs about teaching and their identities as a teacher presented in three subsections. Following that, I

identify limitations of my study and then suggest implications for research and teacher education.

Discussion of the Findings

This section is organized with three subsections. In the first subsection, I focus on developmental process of preservice teachers' conceptions of teaching based on three main themes. In the second subsection, I explain two insights derived from my findings regarding evolution of their teacher identities. Finally, in the third subsection, I introduce a proposed model of preservice teachers' professional growth and discuss how the two developmental aspects are related to each other.

Conceptual Change as Continuous and Outward Construction

Prior beliefs: Problematic barrier vs. indispensible constituent. All participants in this study brought their prior beliefs about teaching into their teacher education program. Those prior beliefs were generally intuitive and mostly came from their past learning experiences. In particular, positive learning experiences and good memories about their favorite teachers were more likely to be related to having constructivist views about teaching rather than transmission views about teaching. Also, preservice teachers who had worked with children for sufficient years tended to hold less simplistic preconceptions of teaching. Whether starting with constructivist views or with transmission views, preservice teachers' prior beliefs about teaching changed into the direction of the program's philosophy over time, which in this case was a constructivist philosophy.

This result challenges the inflexibility of prior beliefs. In many previous studies, researchers have reported that preservice teachers' preconceptions of teaching remained unchanged and even acted as barrier to accepting new information provided by the program, acting as *filters* (Anderson et al., 1995; Hollingsworth, 1989; Holt-Reynolds, 1992; Kagan, 1992; McDiarmid, 1990). However, my study indicated that preservice teachers' pre-existing beliefs about teaching can change and do develop. This is in line with more recent studies (Anderson, 2001; Cabaroglu & Roberts, 2000; Joram & Gabriele, 1998), and these findings underscore that preservice teachers' prior beliefs are indispensible constituents in the process of their conceptual development, rather than acting as a barrier to learning to teach. As one of my participants, Heather suggested, preservice teachers may be like an "open book" because their prior conceptions are not schematic, superficial, and vague but still there is a lot of room to mature.

Reflection: copying vs. validating. Although preservice teachers' developmental characteristics and patterns were idiosyncratic, two aspects appeared across the group. One was that the developmental change occurred continuously throughout the program. Every semester, these preservice teachers experienced distinctive growth in their knowledge and beliefs about teaching and learning. The second common aspect was that expanded knowledge about their students by gradual exposure to the field played an important role in the development. As they came to know more about their students' nature and various ways of learning, they did not simply project what and how they themselves had learned as an elementary student onto their own pupils, and they stopped simply copying their favorite teachers. Instead, these preservice teachers continuously

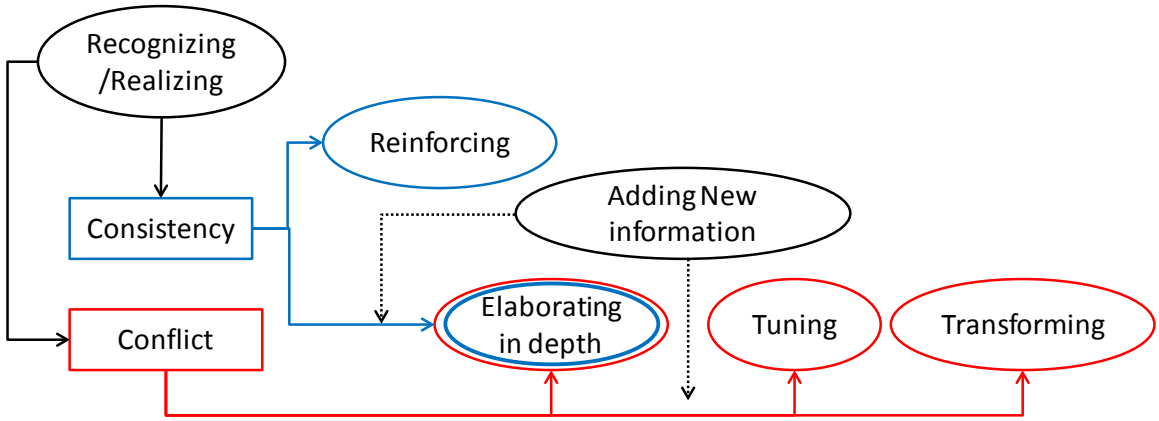
and actively validated what they were currently learning in their university coursework through a comparison with how their teachers had taught them in the past and applying the new strategies to their own students in the field. In these processes of validating, reflection was significantly required. They reflected not only on themselves as teachers but also on their students as learners.

With increased understanding about their students, these preservice teachers showed a shift in their concern to focusing more on what pupils want to learn and how they can learn the best rather than on what they wanted or had to teach students. Regarding management of student behavior, they became more interested in why discipline is needed and why students behave as they do than how they could gain control and students' respect. Thus, a more sophisticated understanding about students accompanied a shift from teacher-focused to student-focused concern that is aligned with Fuller's (1969) outward shift in attention. At the end of the program, the outwardly focused concern also involved other contexts beyond themselves and students' learning, such as district policy, administrative support, and school culture. However, as Conway and Clark (2003) reported, they made an inward journey at the same time by maintaining deep reflection on themselves as a teacher both in the college classroom and in their field placement. This inward focused concern seemed to help them to realize professional aspects of teaching and to understand better the complexity of teaching, supporting them to be appropriate in their practice. This point is closely related to the development of teacher identity and discussed in the second subsection.

Multiple layered nature of change: From subtle modification to dramatic transformation. The last point that I would like to discuss, regarding preservice teachers' conceptual development, is that preservice teachers experience multiple layered processes of change. As addressed in the previous chapter, the participants in my study varied in the degree and speed of change, in the content areas in which they showed distinctive difference in change, and in the time at which change seemed to occur. One controversial point about inflexibility of beliefs that has been discussed in previous research is the limited sphere of the meaning of change. As Anderson (2001) pointed out, change does not only mean a tremendous shift. Agreeing with her perspective on change, my study argues that even in the case of reinforcing or confirming pre-existing beliefs, change can still occur in terms of beliefs becoming more distinct.

More importantly, change did not always mean progress. Especially, preservice teachers' conceptions of teaching did not seem always to be moving toward a internalized conception but sometimes, seemed to regress to a position opposite of the program's beliefs. I identified in the previous chapter the cases of partial fine-tuning in Heather's and Michelle's conceptual development. The category *tuning* represents the phenomenon. In fact, both categories *tuning* and *transforming* can include both positive (+) and negative (-) changes. Figure 7 depicts a model of the nature of change as identified in this study, and how the categories dynamically relate to one another.

Figure 7. Dynamic Relationships among Categories of the Nature of Change



What preservice teachers realized or recognized from reflecting what they had newly learned influenced subsequent changes, and *adding new information* category can involve all change categories except for the *reinforcing* category. In terms of degree of change, categories in the lower layer and toward the left represent bigger change. These processes do not appear linearly or hierarchically. Instead, evidence indicated that individual preservice teachers experienced several processes of change at the same time and in the form of dynamic connections among the categories.

Cultivation of Teacher Identity as Progressive and Inward Projection

Of the two developmental aspects, conceptual development was discussed in the previous section based on three points. In this section, I address two themes, regarding the other aspect, teacher identity formation. Discussion of the relationship between two areas is continued in the next section.

Dual identities: contextual and momentary switch of roles. Most preservice teachers expressed that they had dual identities, experienced distinctly in the university classroom and in the placement classroom, rather than taking on a student-only identity

or teacher-only identity. I distinguished three types of dual identities according to the degree to which roles seemed to appear dominantly: (a) student-dominated identity, (b) equal student and teacher identities, and (c) teacher-dominated identity. How they identified themselves in the two contexts was itself subject to moment by moment changes and those changes were influenced by several factors such as what they were doing, how others positioned them, and what activities or what topics they were being engaged. For example, when they were reading course materials, first hearing about something, and taking notes, they felt themselves to be more like a student, but when they were defining and expressing their views in class discussions, they identified themselves as both student and teacher. Once they understood new material, they envisioned it in their mind by reflecting how the new information related to them as a teacher in the future, which were a moment when they would switch to taking on a more role of teacher identity.

Similarly, when these preservice teachers observed their cooperating teachers' teaching or taught their own lessons, they progressively made the switch from student to teacher roles, and their reflectivity was vital in the process. While actively engaging in a process of self-recognition and self-revelation, they focused on their deeper self-as- a-teacher. This self-development is similar to what Conway and Clark (2003) referred to as inward focus of attention moving from self-survival concerns toward development of self-as-teacher. The journey inward was also mentioned in Poulou's (2007) study. This inward journey for growing the self as a professional teacher is intertwined with the

outward journey for developing conceptions of teaching. The relationship between the two journeys is discussed in the third subsection.

Unrealistic optimism vs. quite realistic and not-so-optimistic expectations. The term *unrealistic optimism* that Weinstein (1988; 1989) first introduced in the teacher education field was widely accepted in describing preservice teachers' immature understanding about the complexity of teaching. I also observed it from many preservice teachers at the earliest time in their teacher education program. However, with the passing of semesters, especially during student-teaching weeks, the preservice teachers came to have quite a realistic understanding about their students and their teaching, and accordingly, did not show overly optimistic expectations about the first year of teaching although their confidence and excitement about being a new teacher increased every semester. As mentioned before, preservice teachers in this study realized the professional aspects of teaching and developed sophisticated understandings about the complex nature of teaching through resolving conflicts between their ideal and the reality they encountered in the field, thereby indicating a realistic vision about their future teaching. This point is consistent with Bauml's (2009) claim that preservice teachers have a surprisingly nuanced understanding about the teacher-student relationship. Preservice teachers' quite realistic and not-so-optimistic beliefs about the first year of teaching seemed to lead them to reflect eagerly on becoming a teacher, promoting their inward journey of growing a professional self.

Ongoing Journey of Becoming a Good Teacher

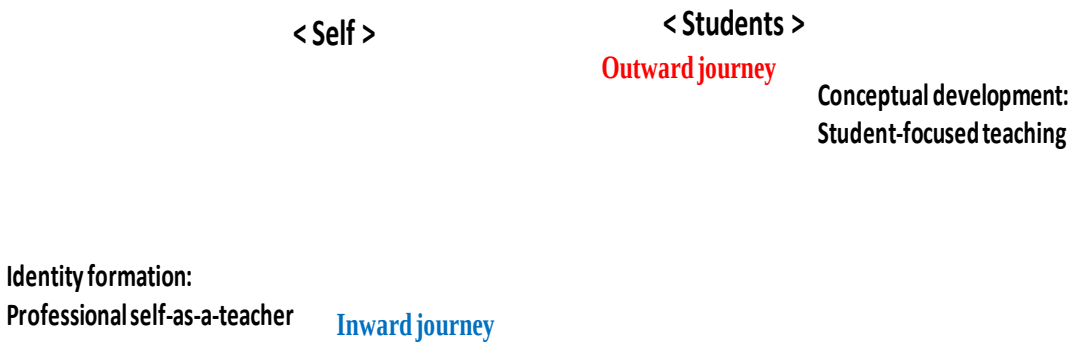
In the above subsections, I portrayed preservice teachers' cognitive growth as an outward journey and their identity development as an inward journey. The claims I make here challenge and extend the previous research that has argued for a one-directional development or that has considered these two journeys as separate processes of development.

The two developmental aspects, conceptions of teaching and teacher identities, are related to each other in two ways. First, they share basic resources for individuals' professional growth during teacher preparation. Prior beliefs about teaching and prior images of self-as-a-teacher were mostly shaped by their "apprenticeship of observation." Accordingly, these preservice teachers' prior images of themselves reflected their prior beliefs about teaching, and vice versa. More importantly, newly acquired knowledge about students seemed a crucial component in both aspects of development. The preservice teachers used their expanded knowledge about students and learning to acknowledge, modify, and reconstruct their prior beliefs about teaching and their prior self-images as teachers. The other way of relating the two developmental aspects is that both journeys required a similar mechanism of development. The realization of a gap between theory and practice, between their ideal and reality, or between their pre-existing beliefs and newly acquired beliefs about teaching and self acted as a starting point of development. The cognitive dissonance triggered preservice teachers' continuous validation of what they had learned and experienced throughout the teaching education program. In the process, preservice teachers' reflection played an important role, an

increasingly important one as semesters passed. Similarly, Kagan (1992) noted that novice teachers' metacognition about their beliefs and conceptual change increased in the process of professional growth.

Sharing resources and the mechanism of development, preservice teachers' identities as a teacher did not evolve separately from the progression of their conceptions of teaching. Figure 8 shows how these two developmental aspects go along together in the long journey of becoming a teacher. This model is aligned with Kagan's (1992) model of professional development in that knowledge of self and knowledge of students are seen as essential components in the developmental journeys. According to Kagan, acquiring knowledge of students and knowledge of self is a primary task for novice teachers and suggested that their schemata for pupils and self-as-a-teacher evolve together.

Figure 8. Reciprocal Relationship in Developing Conceptions of Teaching and Teacher Identities



However, Kagan considered novice teachers' attention shifts as unidirectional and thus, once the image of self-as-a-teacher is resolved, novice teachers move their attention to

instructional design and finally to pupils' learning. Although she emphasized the necessity and importance of self-focused attention at the initial stage of teacher development, the inward focus in her view does not seem needed any more once clarity about one's self-image as a teacher is accomplished. In that sense, Kagan's model of professional development is different from mine.

As shown in Figure 8, in my study, preservice teachers' knowledge about student and self and their attentional shifts are considered to overlap to some degree and to influence each other in terms of both developmental aspects. Inward and outward focuses are held and integrated into an ongoing journey of becoming a good teacher. These two journeys cannot be separated from each other but instead, should be seen as external and internal aspects of the same developmental trajectory of becoming a teacher. Moreover, these two developmental journeys can be connected in that one aspect of development can be a process of retaining the other aspect. Thus, as preservice teachers progress in their understanding about the nature of teaching, their self-actualization as a teacher becomes solid. Reciprocally, once preservice teachers start to project themselves as a teacher, it provokes their conceptual change and allows change to become more permanent.

As such, this study supports and challenges Kagan's (1992) professional growth model and Fuller's (1969) classic concerns-based model of teacher development, aligning itself with some recent studies about beginning teachers' professional development (Conway & Clark, 2003; Poulou, 2007; Watzke, 2007). The bi-directional aspect of this model is also distinguished from Hollingsworth's (1989) model of learning to teach.

Hollingsworth seemed to assert a one-directional and successive shift in teachers' focus of attention. In other words, in her model, acquiring *general managerial routines* has to occur before *subject content and pedagogy* becomes a teacher's focus of attention, and then, interrelated managerial and academic routines are required for teachers to give their attentional focus on *students' learning from academic tasks in classrooms*. In addition, although these three areas of cognitive attention for teachers and personal, program, and contextual factors that may influence their learning to teach were emphasized in Hollingworth's model, my model focused on the ways of developing teaching conceptions and teacher identity and the dynamic relationship between the two aspects of growth. This study also suggests that preservice teachers need to be lifelong learners and that they see themselves on a continual journey to becoming a good teacher.

Limitations of the Study

There were several limitations that need to be kept in mind when interpreting my analysis and conclusions from the study. First, a small number of participants from a single setting limit the generalizability of these findings to other similar contexts. The results and interpretation of this study are based on the analysis of only eight students' experiences, and the students were all from one teacher education program. The recruitment of participants depended entirely on voluntary participation, and the eight individuals highlighted here were the participants who remained throughout the process of tracking across the three semesters. The reliance upon these participants in the study may not be a representative group of preservice teachers. Relevantly, I was not able to show much spread among their scores of epistemological beliefs.

In addition, the distinctive results of this study may be caused by some specifics of the participants of the study or of the teacher education program in which this study was situated. It is possible that this group of students may have had more interest in their developmental issues and professional growth. The teacher education program can also be characterized by its special emphasis on the connection between coursework and field experience. Therefore, caution needs to be taken in generalizing these findings to other groups of preservice teachers, and it would be useful to include students from differently characterized teacher preparation programs. Nevertheless, the number of participants in this study was sufficiently large enough for me to handle in the whole processes of data collection and analysis and to form a discernable group of focal students for case analysis.

Second, I must confess my limitations as a non-native English researcher and also my struggles in becoming a qualitative researcher throughout the process of the study. The language barrier and my unfamiliarity with the American educational system could be a benefit and hindrance at the same time. I may not have been able to have empathic understanding about my participants' stories. At the same time, I may have brought a fresh understanding and detached perspective, which may have led me to approach my data with more careful attentiveness. In addition, my effort to overcome the disadvantages, such as repeating similar questions in another way or asking questions about some detailed aspects of what was going on may have actually helped me to gather more accurate and ample data.

Last, this study did not intend to track preservice teachers' first year of teaching. However, when considering the nature of my topic, the exploration of what happens in

their first year of teaching would have allowed for a more comprehensible picture of becoming a new teacher, and such a study would have been a better design of research, in particular, to answer my last research questions about the relationship between beliefs and actions.

Implications for Preservice Teacher Education

This study clearly showed that criticisms about the effectiveness of teacher education program should be tempered. Based on my findings and insights gained throughout the study, I provide in this section several implications that may help teacher educators better organize teacher education programs from an enhanced understanding of preservice teachers' learning.

First, the study detected idiosyncratic patterns of preservice teachers' conceptual development in terms of nature, speed, and distinctiveness. Results indicated that individual preservice teachers learn very differently from the same instructors and materials within the same cohort under the same education program. I see these differences as coming from contextual, experiential, and interactional factors rather than from talents or personal traits. Indeed, teacher educators need to provide help to individual preservice teachers based on their own developmental patterns. Another implication for teacher education is that offering preservice teachers opportunities for reflecting and articulating their pre-existing beliefs is important in their learning to teach. Preservice teachers are likely to construct a sense of pupils' characteristics of learning based on their own image as learners and their past learning experiences. Similarly, they seem to project their image of themselves as future teachers based on their past teachers

and want to copy their previous teachers' teaching, particularly in the early period of teacher education program. However, later on, they begin to mitigate those propensities and in that process, reflection is importantly needed.

With respect to organization of coursework and internships, the classes taught in the university classroom should be closely connected with their internship experiences. My participants often reported that projects that made them apply concepts to actual lesson plans and teaching were very helpful for their internalization of the concepts that they were learning while taking several methodological courses of teaching subjects, and that gradually extended exposure to the field helped them understand deeply the nature of pupils and their ways of learning. In addition, being exposed to various pedagogical perspectives and having various opportunities of self-regulation seemed to be necessary components that need to be included in the design of educational courses. Such opportunities for self-regulation help them to be more actively engaged in the process of conceptual change and ultimately to teach their own students to be self-regulated learners.

Theoretical Implications and Future Research

The current study revealed all the most prominent issues discussed in the literature about preservice teacher education and emphasized the reciprocal interplay of conceptual change and identity evolution in preservice teacher development. I conclude that one aspect of development cannot be fully understood without the other because both aspects are very closely related, and the balance between the two journeys, inward and outward, is vital in becoming a good teacher. The study also confirmed that preservice teachers' trajectories in learning to teach take place in highly complex ways by focusing

not only on the final outcome of the developmental process but also on the process of their professional learning and growth. Given the significance of the findings, my study has two implications for educational theory or research about preservice teachers' learning.

First, my findings suggest that validation is one essential learning tool for preservice teachers to understand concepts taught in their education program, and it occurs almost automatically, recalling their K-12 learning experiences and also projecting into their future teaching actions. Furthermore, cognitive dissonance may be necessary in the process of validation, ultimately leading to modification of their beliefs about teaching and self-image as a teacher. The occurrence of validation and cognitive dissonance may represent unique aspects of preservice teachers' learning, pointing to the need for a different approach to description of preservice teachers' learning to teach. A second implication is related to the concerns-based model of professional development. My study indicated that preservice teachers' attention shift is a key aspect of their development, and especially, that student-focused attention may be a central concern in the ongoing journey of becoming a good teacher. This is one aspect that needs further exploration, such as where the concern comes from, what the concern brings into their teaching, or whether student-focused attention can be supported by the program. In this way, Fuller's (1969) classic model, which represents succinctly well preservice teachers' progression as they develop, may be extended.

These implications lead to insights for future research. Regarding the first implication, there is need for research on the process of validation, perhaps by analyzing

preservice teachers' classroom discussions. As a part of data collection for this study, I observed the students' three Book Club discussions and audio-recorded all these sessions. It would be interesting to see how students individually validated what they had learned from a chapter of their textbook and also how they cooperatively contributed to each other's individual validation through dialogic interaction. For another future study, research on beginning teachers' first year of teaching would be very meaningful as a continuation of the current study because first year teaching is different from student-teaching in terms of teaching contexts. Teacher responsibilities may influence their beliefs about teaching and their identity as a teacher. It would have been delightful to follow my participants to see what happened to them in their first year of teaching.

I believe that this study bring us closer to an understanding of preservice teachers' professional development. Although they have had a long history of research, preservice teachers' conceptual development is still an interesting and important research area, and teachers' professional identity formation is an evolving interest that has been conspicuously researched in recent years. Clearly, teacher educators and educational researchers have a responsibility to help preservice teachers grow as good teachers and also as lifelong learners. It is my hope that this study has provided some perspective on what it means to develop into a teacher to become a teacher.

Epilogue

I still remember that my heart was overflowing with joy and too full for words on the last day I was interviewing my participants. Their calling to help people and teach children had touched me from the beginning of the study. Their wrestling with the issue of how to teach in a way that meets individual needs was a beautiful struggle that I saw throughout the study. I was most impressed that they identified themselves as lifelong learners and were open to continuously changing themselves as teachers. At the end of the study, they were excited about continuing their journeys of becoming a good teacher! I hope that their long journeys are full of joy, laughter, and happiness. In leaving graduate school, I recognize that I am also very excited about becoming a good scholar.

Appendix A

Epistemological Beliefs Inventory (EBI)

1) Absolute moral truth does not exist
2) What is true today will be true tomorrow
3) Sometimes there are no right answers to life's problems
4) People should always obey the law
5) When someone in authority tells me what to do, I usually do it
6) Parents should teach their children all there is to know about life
7) The moral rules I live by apply to everyone
8) You can study something for years and still not understand
9) People who question authority are troublemakers
10) Truth means different things to different people
11) Too many theories just complicate things
12) If a person tries too hard to understand a problem, they will most likely end up confused
13) The best ideas are often the most simple
14) Instructors should focus on facts instead of theories
15) Things are simpler than most professors would have you believe
16) It bothers me when instructors don't tell students the answers to complicated problems
17) If two people are arguing about something, at least one of them must be wrong
18) Some people will never be smart no matter how hard they work
19) Really smart students don't have to work as hard to do well in school
20) People can't do too much about how smart they are
21) How well you do in school depends on how smart you are
22) Some people just have a knack for learning and others don't
23) Smart people are born that way
24) Students who learn things quickly are the most successful
25) If you don't learn something quickly, you will never learn it
26) Some people are born with special gifts & talents
27) If you haven't understood a chapter the first time through, going back over it won't help
28) Science is easy to understand because it contains so many facts
29) Working on a problem with no quick solution is a waste of time
30) The more you know about a topic, the more there is to know
31) I like teachers who present several competing theories & let their students decide which is best
32) Children should be allowed to question their parents' authority

Appendix B

Epistemological World Views survey

Realist World View

There is a core body of knowledge in my classroom that each student must learn. Some of it is factual, but some of it is based on broad concepts and principles that everyone agrees on. This knowledge doesn't change much over time and represents the accumulation of important truths and understanding in my discipline. It's important for students to acquire this knowledge exactly as it is. The best way to acquire this knowledge is through an expert like me because I have a much better sense than they do of what is important to learn. It's unlikely that students could really create this knowledge on their own, so learning it from me quicker and more efficient. For this reason, it is important to me to assume a take-charge attitude so students can learn as much as possible. It's important to me that everyone comes away from my class with the big picture. It is my job to present the big picture clearly.

Contextualist World View

Students are encouraged to develop their own understanding in my classroom so knowledge is personally useful to them. However, the fact that students are expected to construct their own understanding doesn't mean that all understandings are equally valid. While I believe that knowledge is subject to interpretation, I also believe that some conclusions are better than others. Students need to understand how to gather and evaluate evidence so they can distinguish good from poor arguments. I can teach them some of these skills, but some they will have to learn by working with other students, or on their own. I believe that each student will bring a unique and valuable perspective with them. I try to structure my class so that students will pool their resources and come to the best understanding possible.

Relativist World View

Students in my class need to understand that there are a variety of different ways to understand things. Knowledge comes and goes, and what the so-called experts consider the truth today will be viewed with suspicion tomorrow. Even people who spend years studying a topic disagree about what things mean, and in the long run, one opinion is as good as another. This means that students have to learn to think for themselves, question the knowledge and authority of others, and evaluate how what they know affects their life. Knowledge has to be used wisely so no one is left out or exploited by society. For these reasons, I don't believe that I can really teach my students what is important, since they all need to know different things. They have to figure it out on their own, taking into account the events that shape their lives, even if the uncertainty of living in a world with conflicting views of truth bothers them. What I know and believe shouldn't really influence my students. My job is to create an environment where students can learn to think independently and take nothing for granted.

Appendix C

Teaching and Learning Conceptions Questionnaire (TLCQ)

What is Teaching?

When you think about the term TEACHING , what does it mean to you?

*Consider each of these statements carefully, and rate them in terms of how close they are to **your own** way of thinking about it.*

	Very close	Quite close	Not to close	Rather different	Very different
a. Imparting information	5	4	3	2	1
b. Transmitting structured knowledge	5	4	3	2	1
c. Providing lifelong knowledge and skills for a successful life	5	4	3	2	1
d. Teacher-student interaction.	5	4	3	2	1
e. Facilitating understanding.	5	4	3	2	1
f. Changing students' conceptions	5	4	3	2	1
g. Negotiating understanding	5	4	3	2	1
h. Encouraging knowledge creation	5	4	3	2	1
i.Supporting students' development cognitively, emotionally, and socially	5	4	3	2	1

1) The ideas of students are important and should be carefully considered
2) The major role of a teacher is to transmit knowledge to students
3) Learning occurs primarily from drilling and practice
4) During the lesson, it is important to keep students confined to the textbooks and the desks
5) **Teachers should have control over what students do at all times**
6) Effective teaching encourages more discussion and hands on activities for students
7) Teaching is simply telling, presenting or explaining the subject matter

8) Students have really learned something when they can remember it later
9) Good teaching occurs when a teacher does most of talking in the classroom
10) Students have to be called on all the time to keep them under control
11) Students should be given many opportunities to express their ideas
12) Learning means remembering what the teacher has taught
13) A teacher's major task is to give students knowledge/information, assign them drill and practice, and test their recall
14) Learning mainly involves absorbing as much information as possible
15) Good students keep quiet and follow the teacher's instruction in class
16) In good classrooms there is a democratic and free atmosphere that stimulates students to think and interact
17) The traditional/lecture method for teaching is best because it covers more information/knowledge
18) Every child is unique or special and deserves an education tailored to his or her particular needs
19) Good teachers always encourage students to think of answers for themselves
20) The focus of teaching is to help students construct knowledge from their learning experience instead of knowledge communication
21) It is best if teachers exercise as much authority as possible in the classroom
22) Different objectives and expectations in learning should be applied to different students
23) Teaching is to provide students with accurate and complete knowledge rather than encourage them to discover it
24) A teacher's task is to correct learning misconceptions of students right away instead of allowing students to verify them for themselves
25) Learning to teach simply means practicing the ideas from lecturers without questioning them
26) No learning can take place unless students are controlled
27) Good teachers always make their students feel important
28) Instruction should be flexible enough to accommodate individual differences among students
29) It is important that a teacher understands the feelings of the students
30) Learning means students have ample opportunities to explore, discuss and express their ideas

*Bold types of items are reworded or modified by a researcher.

Appendix D

Perception and Reflection Survey

Teacher - centered teaching: Traditional view of teaching; students are considered to be more or less the passive recipients of information transmitted from teacher to the students

Student- centered teaching: Constructivist view of teaching; students are considered to be more active learners who make own meaning and teaching is seen as facilitating the students' learning processes.

1. If asked to categorize the teaching philosophy or view about teaching of the UT PDS program would you say it is more student-centered or teacher-centered? Please choose the number indicating your response (Do not go to the website to look up the official statement of philosophy. I'm interested in what YOU think the program's philosophy or view about teaching might be. If you cannot think of that, you can choose "don't know").

0	1	2	3	4	5
Don't know	Very Teacher-centered	Teacher-centered	Half & Half	Student-centered	Very Student-centered

2. As you answer the questions below, think about the classes you took last spring (SPRING, 2009) and your internship experience you had in the SPRING, 2009. Please choose number indicating your response to each question.

1	2	3	4	5
Very Teacher-centered	Teacher-centered	Half & Half	Student-centered	Very Student-centered

   1) Would you classify the majority of your UT PDS instructors' teaching styles as more student-centered or more teacher-centered?

2) Did you learn about more student-centered or teacher-centered approaches to teaching from your instructors last spring? (Think about the content of their lectures)
3) Would you classify your cooperating teacher (CT)'s teaching style as more student-centered or more teacher-centered?

3. As you answer the questions below, think about the classes you are taking this Fall (FALL, 2009) and your current internship experience this semester (FALL, 2009). Please choose number indicating your response to each question.

1	2	3	4	5
Very Teacher-centered	Teacher-centered	Half & Half	Student-centered	Very Student-centered

1) Would you classify the majority of your UT PDS instructors' teaching styles as more student-centered or more teacher-centered?
2) Are you learning about more learner-centered or teacher-centered approaches to teaching from your instructors this semester? (Think about the content of their lectures)
3) Would you classify your current cooperating teacher (CT)'s teaching style as more student-centered or more teacher-centered?

Appendix E

Interview Protocol-Final Interview

< 2009, Spring>

1. Tell me about your experience in elementary school
   Prompt: How did you feel about going to school? Who was your favorite teacher? What was your favorite class? Why was that? What kind of student were you? Can you give me an example of a time when you learned something well? How did you know you learned that well?
2. Tell me about your experience in middle/junior high school
3. Tell me about your experience in high school
4. Do you think your learning experience during K-12 influence your learning now in the ALD class or your internship in some way? How?
5. Tell me about any experience you had related to teaching like tutor, after-school teacher, volunteer in school, or anything else. How do you think those experiences influence your learning now in PDS course?
6. Tell me the story about how you decided to be a teacher
   Prompt: when/why did you want to be a teacher? What/who have influenced your decision? Did your experience during K-12 influence you to be a teacher? How?
7. Think what you picture a teacher to be (or teaching to be) before starting this semester, did you find any difference between what you already had and what you have learned in class? Did you have to modify or adjust your original picture as a result of what you have learned? How hard or easy was this to do?
8. What was your first impression of the elementary school, classroom, kids or teachers you are working with as an intern? Did you see any gap or difference from what you pictured before going to the elementary school?
9. Has your conception of teaching changed in any way this semester? What caused the changes? If not, why don't you think so?

Prompt: What experience you have had this semester influenced the change? (class, internship-observation, interaction with students/cooperate teacher/peer intern, etc.)

10. How do you feel about your learning experience of ALD328 class so far?
    Prompt: what is good or bad? What expectation/goal did you have about this class and in terms of that, how do you satisfy with the class?
11. How do you feel about your internship experience so far?
    Prompt: what is good or bad? What expectation/goal did you have about the internship and in terms of that, how do you satisfy with it?
12. Have you been seen any gap between what you have learned in the class and what you observed of students or what you applied to the students in the elementary school? How did you adjust the differences? How did you decide which things you would adopt for your classroom and what things you wouldn't?
13. Do you identify as a learner or teacher or the both in this class? Why? (Have them think of a specific time in class when the teacher asked them to apply what they learned to their future classroom. Do you have to think like a teacher to do this? Are there times when you think more like a teacher than a learner in class? What did you have to think about to answer that question? Did you imagine yourself as a teacher?)
14. How do you identify yourself in the elementary school? Why?
15. What do you think is the most important role of a teacher? What kind of classroom do you want to create when you have your own classroom? How do you want to teach your students?
16. Tell me how confident you are about being a teacher.
    Prompt: what strength/weakness do you think you have as a teacher? What knowledge/skills do you think you need to learn more? Why?

<2009, Fall>

1. This semester is your second semester of PDS. What expectation or goal did you have before starting the semester?
2. How do you feel about your learning experience? In terms of your expectation or goal, how do you satisfy with your learning this semester?
3. What is good (bad) about your learning this semester?
4. Tell me about what you have learned the most from taking courses?
   Can you give me an example of a time when you learned something well?
5. Tell me about what you have learned the most from your internship?
6. Tell me about a critical incident you have had in the placement elementary school?
7. Have you had any moment when you realized a new thing about teaching and learning you never had thought before this semester?
8. Have you had any moment when you felt I was wrong about something related teaching and learning before and I know now that is that this semester?
9. Have you had any moment when you felt it was hard to accept or believe?
   Why? How did you manage it?
10. Have you seen any gap between what you have learned in the coursework and what you observed of students or what you applied to the students in the elementary school? How did you adjust the differences?
11. What is your current view about students and how they learn?
12. What is your current view about good teaching?
13. What is your current view about classroom management?
    What is your view about teachers' control and authority in the classroom?
    What would you write in your final paper of personal discipline system?
14. How does your observation of diverse students in the placement has influenced your thinking about teaching or learning?
15. Have you ever modified somehow your vision of teaching such as "what classroom environment I want to create", "What/how my students should learn from my class, or "what/how I want to teach my students?
    What influenced the change?

<2010, Spring>

1. How do you feel about your learning experience in the “Science teaching method” class?
    - What was good/bad with the class? What did you learn from the class?
2. Did you identify yourself as a student or a teacher or both in that class? What do you think made you identify yourself that way?
3. How do you feel about your internship experience this semester?
    - What was good/bad with the internship? What did you learn from the internship?
    - Tell me about your relationship with your CT/Students.
4. How many times did you do full teaching this semester? Reflecting on your lessons,…..
    - What methods do you think you used the most in your teaching?
    - What was your basic concern during your teaching?
    - Can you define what your role was in your teaching?
5. Can you give me a critical incident that influenced your idea about teaching?
6. Did you feel any challenges in preparing or conducting your lessons? How did you deal with these issues?
7. Reflecting in the all classes you took in the PDS program, which class do you think was most helpful to you? Why?
8. Reflecting on all CTs you worked in your placement, who do you think was most helpful to you? Why?
9. How was your relationship with your coordinator/facilitator? Can you share their evaluation or advice about your teaching?
10. Imagine you are in your first teaching job. Can you describe what will be going on in your classroom?
11. Do you think your idea about teaching have modified or changed somehow this semester? How?
12. How do you feel about being a new teacher? What is your biggest concern about being a new teacher? Do you feel like a teacher now?
13. Can you tell me why you chose the rating for each description? Were there some particular statements that really clicked you and made you decide your rating?

Appendix F

Interview Protocol-Recall Interview

1. How do you feel about your teaching today? Tell me whatever this question makes you think about.
2. How did you expect your students to learn in your class? How well do you think your students learned?
3. Why did you plan *the activity* or *the teaching strategy (indicating a specific one she used in class)*?
   Where did you get the idea for the activity or strategy (from a specific class among her coursework, textbooks, observation of other teachers, etc…)?
4. How well do you think the activity or the strategy worked?
   If you have something to do differently next time, what would it be?
   What would you want to do to make it better?
5. Was there anything that you changed not following your lesson plan? Why did you make that change? What did you consider in making the change?
6. How do you feel about yourself at the moment you were teaching? Did you feel like a teacher while teaching? What made you feel like that? Are there times you feel more like a teacher and times you feel less like a teacher?

** The purpose of the reading aloud, what do you think is the goal of these reading aloud lessons?
** Do you have any special reason for choosing this book?
** When a teacher adjusted something in the middle of the lesson: I notice that you adjusted this practice. Why did you make the change? What did you consider in making the change? How did that seem to work? (How do you feel that things worked out?) What are the pros and cons now you see?

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